Norbar Torque Tools















PRODUCT LIST 2016

LEGEND

TORQUE WRENCHES

Accuracy (%)	Ratchet	Digital Display
Single Scale	Torque Handle	IP Rated
Dual Scale	Fixed	Case Included
Multi Scale	Calibration Certificate	
Adjustment Lock	Torque & Angle	

MANUAL TORQUE MULTIPLIERS

Accuracy (%)	Calibration Certificate	Anti Wind-up Ratchet
Adjustable Reaction	UKAS Certification	Case Included

POWERED TORQUE MULTIPLIERS

Accuracy (%)	Air Consumption - litres/sec	Adjustable Reaction
Dual Scale	Lifting Attachment	Torque & Angle
Multi Scale	2 Speed	Calibration Certificate
Digital Display	Bi-Directional	IP Rated
Bluetooth Connection	Case Included	

TORQUE MEASUREMENT INSTRUMENTS

Accuracy (%)	Digital Display	Case Included
Multi Transducers	Calibration Certificate	Back-up Data
Multi Scale	UKAS Certification	

HYDRAULIC TOOL CALIBRATION FIXTURES

Accuracy (%)		

HARSH ENVIRONMENT INSTRUMENTS

Accuracy (%)	UKAS Certification	Case Included
Multi Transducers	IP Rated	
Multi Scale	Digital Display	

ULTRASONIC MEASUREMENT

Multi Scale	Back-up Data	Case Included
Digital Display	Calibration Certificate	

CALIBRATION BEAMS & WEIGHTS

UKAS Certification	Case Included	

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bsi. ISO 9001 Quality Management ISO 50001 Energy Management

Q06228 EnMS 621748

INTRODUCTION



GLOBAL SERVICE

We are the worlds foremost specialist in torque control and we are engaged solely in the design, development and production of torque tightening and measuring equipment.

Our customers include manufacturers and engineering services in such diverse sectors as aerospace, energy, oil and gas, mining and sub-sea.

There are sales and service branches in North America, Australia, Singapore, China and India. In addition, we have distributors of our torque control products in more than 60 countries around the world.

A FAMILY BUSINESS

The Brodey family has owned Norbar since Bill Brodey incorporated the company in 1943. We are now the third generation of the family to manage the business and are passionate about its every aspect.

At Norbar we are determined to bring our customers advanced new products and this year we are excited to be launching our ClickTronic torque wrench in this product list. This new product combines the proven mechanism from our Professional torque wrench family with a digital scale making one of the most accurate and easy to use torque wrenches on the market.

We continue to invest in the very latest design, manufacturing and quality control technology to achieve the highest level of innovation and precision in the field of torque control and equipment.



The Norbar Directors from top left to bottom right:
Catherine Rohll (Commercial Director),
Philip Brodey (Sales & Marketing Director),
Neill Brodey (Managing Director),
Craig Brodey (Director)

TORQUE WRENCHES

Norbar Torque Tools manufacture an extensive range of high quality torque screwdrivers and torque wrenches to cover torque values from 0.3 N·m to 2000 N·m.
They are designed and manufactured to exceed international standards for accuracy.

In addition to the normal 'adjustable' torque wrenches, Norbar offer Production 'P' Type versions which can be pre-set and dedicated to a particular application. This setting system is designed to discourage unauthorised alteration.

All Norbar torque wrenches are offered as standard with a quality ratchet. For applications where interchangeable end fittings are required, 'Torque Handles', which allow for interchangeable spanner fittings, are also available in various models up to 650 N·m.

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TORQUE SCREWDRIVERS





Shown with TruCheck™



Screwdriver Kit

Versatile, accurate and easy torqueing for smaller fasteners and restricted spaces

- Accuracy exceeds the requirements of ISO6789:2003
- Supplied with ¼" hexagon bit holder
- Bit holder can be removed and replaced with widely available screwdriver blades
- Single scale, either N·m or lbf·in

2	ADJUSTABLE N·m
13475	TTs1.5 N·m, ¼", 0.3 - 1.5 N·m
13476	TTs3.0 N·m, ¼", 0.6 - 3 N·m
13509	TTs6.0 N·m, ¼", 1.2 - 6 N·m

2	ADJUSTABLE lbf·in
13515	TTs13 in·lb, ¼", 2.5 - 13 lbf·in
13516	TTs26 in·lb, ¼", 5 - 26 lbf·in
13517	TTs53 in·lb, ¼", 10 - 53 lbf·in

2	PRODUCTION 'P' TYPE
13510	TTs1.5, ¼", 0.3 - 1.5 N·m, 2.5 - 13 lbf·in
13511	TTs3.0, ¼", 0.6 - 3 N·m, 5 - 26 lbf·in
13512	TTs6.0, ¼", 1.2 - 6 N·m, 10 - 53 lbf·in
SQ2222	Pre-set, etch and certify (Allow 3 days delivery for this service)

2	ADJUSTABLE N·m KIT
13700	TTs0.3 - 1.5 N·m Kit with 12 piece bit set and case
13701	TTs0.6 - 3 N·m Kit with 12 piece bit set and case
13702	TTs1.2 - 6 N·m Kit with 12 piece bit set and case
28937	12 Piece ¼", Hex Bit Set

TTi TORQUE WRENCHES







TTi20 and TTi50 Reversible Ratchet



TTi60 - TTi300 Ratchet is 'push through' for clockwise and anti-clockwise torque control

For no-nonsense torqueing - comfortable, accurate and easy to use

- Accurate to ±3% of reading which meets and exceeds ISO6789:2003
- Micrometer scale for simple and error free setting
- Available with either dual scale (N·m and lbf·ft) or single denomination torque scale
- 'Push Through' ratchets adapt for torque control in both the clockwise and anticlockwise directions
- Tough ratchets with narrow engagement angles allow for easy positioning of the tool in confined spaces
- All models feature a lock to prevent accidental adjustment of the set torque
- Handle and lens materials resistant to commonly used industrial chemicals

2	RATCHET ADJUSTABLE - DUAL SCALE
13285	TTi20, ¼", 1 - 20 N·m, 10 - 180 lbf·in
13640	TTi20, ⅜", 1 - 20 N·m, 10 - 180 lbf·in
13658	TTi50, ⅜", 8 - 50 N·m, 6 - 35 lbf·ft
13659	TTi50, ½", 8 - 50 N·m, 6 - 35 lbf·ft
13679	TTi60, ⅜", 12 - 60 N·m, 10 - 45 lbf·ft
13680	TTi60, ½", 12 - 60 N·m, 10 - 45 lbf·ft
13440	TTi100, ⅜", 20 - 100 N·m, 15 - 75 lbf·ft
13441	TTi100, ½", 20 - 100 N·m, 15 - 75 lbf·ft
13442	TTi150, ½", 30 - 150 N·m, 20 - 110 lbf·ft
13443	TTi200, ½", 40 - 200 N·m, 30 - 150 lbf·ft
13444	TTi250, ½", 50 - 250 N·m, 40 - 185 lbf·ft
13445	TTi300, ½", 60 - 300 N·m, 45 - 220 lbf·ft

2	RATCHET ADJUSTABLE - N·m ONLY
13648	TTi20 N·m, ¼", 1 - 20 N·m
13649	TTi20 N·m, ⅜", 1 - 20 N·m
13662	TTi50 N·m, ⅜", 8 - 50 N·m
13663	TTi50 N·m, ½", 8 - 50 N·m
13681	TTi60 N·m, ⅜", 12 - 60 N·m
13682	TTi60 N·m, ½", 12 - 60 N·m
13450	TTi100 N·m, ⅜", 20 - 100 N·m
13451	TTi100 N·m, ½", 20 - 100 N·m
13452	TTi150 N·m, ½", 30 - 150 N·m
13453	TTi200 N·m, ½", 40 - 200 N·m
13454	TTi250 N·m, ½", 50 - 250 N·m
13455	TTi300 N·m. ½", 60 - 300 N·m

2	RATCHET ADJUSTABLE - lbf·ft ONLY
13652	TTi15 ft·lb, ¼", 10 - 180 lbf·in
13653	TTi15 ft·lb, ⅜", 10 - 180 lbf·in
13664	TTi35 ft·lb, ⅜", 6 - 35 lbf·ft
13665	TTi35 ft·lb, ½", 6 - 35 lbf·ft
13683	TTi45 ft·lb, ⅜", 10 - 45 lbf·ft
13684	TTi45 ft·lb, ½", 10 - 45 lbf·ft
13460	TTi75 ft·lb, ⅜", 15 - 75 lbf·ft
13461	TTi75 ft·lb, ½", 15 - 75 lbf·ft
13462	TTi110 ft·lb, ½", 20 - 110 lbf·ft
13463	TTi150 ft·lb, ½", 30 - 150 lbf·ft
13464	TTi185 ft·lb, ½", 40 - 185 lbf·ft
13465	TTi220 ft·lb, ½", 45 - 220 lbf·ft
13466	TTi250 ft·lb, ½", 50 - 250 lbf·ft

TTf FIXED HEAD TORQUE WRENCHES





TTf Fixed Head

Ultra robust, non-ratcheting fixed head

- Accurate to ±3% of reading which meets and exceeds ISO6789:2003
- Micrometer scale for simple, error free setting
- Available with either dual scale (N·m and lbf·ft) or single denomination torque scale

2	ADJUSTABLE - DUAL SCALE
13550	TTf20 ⅜", 1 - 20 N·m, 10 - 180 lbf·in
13685	TTf60 ⅜", 12 – 60 N·m, 10 – 45 lbf·ft
13552	TTf100 ⅜", 20 - 100 N·m, 15 - 75 lbf·ft
13553	TTf100 ½", 20 - 100 N·m, 15 - 75 lbf·ft
13554	TTf150 ½", 30 - 150 N·m, 20 - 110 lbf·ft
13555	TTf200 ½", 40 - 200 N·m, 30 - 150 lbf·ft
13556	TTf250 ½", 50 - 250 N·m, 40 - 185 lbf·ft
13557	TTf300 ½", 60 - 300 N·m, 45 - 220 lbf·ft

2	ADJUSTABLE - N·m ONLY
13559	TTf20 N·m, ⅜", 1 - 20 N·m
13686	TTf60 N·m, ⅜", 12 – 60 N·m
13565	TTf100 N·m, ⅜", 20 - 100 N·m
13566	TTf100 N·m, ½", 20 - 100 N·m
13567	TTf150 N·m, ½", 30 - 150 N·m
13568	TTf200 N·m, ½", 40 - 200 N·m
13569	TTf250 N·m, ½", 50 - 250 N·m
13570	TTf300 N·m, ½", 60 - 300 N·m

2	ADJUSTABLE - lbf·ft ONLY
13573	TTf15 ft·lb, ⅜", 10 - 180 lbf·in
13687	TTf45 ft·lb, ⅜", 10 - 45 lbf·ft
13575	TTf75 ft·lb, ⅜", 15 - 75 lbf·ft
13576	TTf75 ft·lb, ½", 15 - 75 lbf·ft
13577	TTf110 ft·lb, ½", 20 - 100 lbf·ft
13578	TTf150 ft·lb, ½", 30 - 150 lbf·ft
13579	TTf185 ft·lb, ½", 40 - 185 lbf·ft
13580	TTf220 ft·lb, ½", 45 - 220 lbf·ft

TTfth FEMALE TORQUE HANDLES





TTfth Torque Handle

- Accurate to ±3% of reading which meets and exceeds ISO6789:2003
- Micrometer scale for simple, error free setting
- Available with either dual scale (N·m and lbf·ft) or single denomination torque scale
- Two fittings are catered for: Rectangular female type, 9 x 12mm and 14 x 18mm
- Suitable for a huge range of widely available fittings

2	ADJUSTABLE - DUAL SCALE
13600	TTfth20, 9 x 12 mm, 1 - 20 N·m, 10 - 180 lbf·in
13666	TTfth50, 9 x 12 mm, 8 - 50 N·m, 6 - 35 lbf·ft
13667	TTfth60, 9 x 12 mm, 12 - 60 N·m, 10 - 45 lbf·ft
13603	TTfth100, 9 x 12 mm, 20 - 100 N·m, 15 - 75 lbf·ft
13604	TTfth150, 9 x 12 mm, 30 - 150 N·m, 20 - 110 lbf·ft
13605	TTfth200, 9 x 12 mm, 40 - 200 N·m, 30 - 150 lbf·ft
13606	TTfth200, 14 x 18 mm, 40 - 200 N·m, 30 - 150 lbf·ft
13607	TTfth250, 14 x 18 mm, 50 - 250 N·m, 40 - 185 lbf·ft
13608	TTfth300, 14 x 18 mm, 60 - 300 N·m, 45 - 220 lbf·ft

2	ADJUSTABLE - N·m ONLY
13670	TTfth20 N·m, 9 x 12 mm, 1 - 20 N·m
13671	TTfth50 N·m, 9 x 12 mm, 8 - 50 N·m
13672	TTfth60 N·m, 9 x 12 mm, 12 - 60 N·m
13673	TTfh100 N·m, 9 x 12 mm, 20 - 100 N·m
13674	TTfth150 N·m, 9 x 12 mm, 30 - 150 N·m
13675	TTfth200 N·m, 9 x 12 mm, 40 - 200 N·m
13676	TTfth200 N·m, 14 x 18 mm, 40 - 200 N·m
13677	TTfth250 N·m, 14 x 18 mm, 50 - 250 N·m
13678	TTfth300 N·m, 14 x 18 mm, 60 - 300 N·m

NORTRONIC® ELECTRONIC TORQUE WRENCH









The NorTronic®, our first electronic torque wrench, sets the benchmark with its unique Torque Data System (TDS) software and combination of accuracy, wireless capability and angle measurement, in a versatile, robust and easy to use package.

- Accurate and traceable torque and angle control
- Two full colour OLED displays positioned at 90° to each other for visual indication both horizontally and vertically
- 3 Models covering 5 N·m - 330 N·m
- IP44 protection against dust and water ingress
- One piece aluminium handle
- Extruded aluminium case
- Torque and Angle readings can be sent to TDS in real time or downloaded via the USB lead or wi-fi. For wi-fi a wireless adaptor is required for your PC, each wireless adaptor can handle up to 8 wrenches.
- Angle calibration in accordance with VDI/VDE 2648
  Note: Optional UKAS accredited calibration is from 20% to 100% of full scale.

4	NORTRONIC® 868 MHZ
43500	NorTronic 50, ⅜" sq. dr., 868 MHz, 5 - 50 N·m
43501	NorTronic 50, ½" sq. dr., 868 MHz, 5 - 50 N·m
43502	NorTronic 200 ½" sq. dr., 868 MHz, 20 - 200 N·m
43503	NorTronic 330, ½" sq. dr., 868 MHz, 30 - 330 N·m
43508	USB Wireless Adaptor, 868 MHz

For UK, Europe, Singapore and India

4	NORTRONIC® 915 MHZ
43504	NorTronic 50, ⅜" sq. dr., 915 MHz, 5 - 50 N·m
43505	NorTronic 50, ½" sq. dr., 915 MHz, 5 - 50 N·m
43506	NorTronic 200, ½" sq. dr., 915 MHz, 20 - 200 N·m
43507	NorTronic 330, ½" sq. dr., 915 MHz, 30 - 330 N·m
43509	USB Wireless Adaptor, 915 MHz

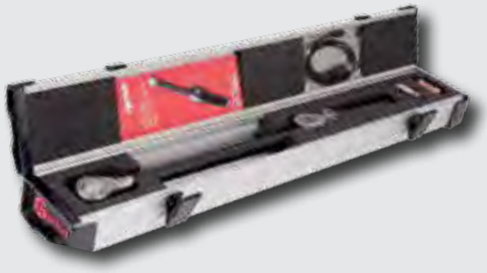
For USA, Canada, Australia and New Zealand



Compatible with Norbar's huge range of spanner end fittings



Unique Torque Data System software enables data management and archiving to a PC



TT NON MAGNETIC TORQUE WRENCH



Carefully selected and tested materials replace the ferrous components present in standard torque wrenches, thereby giving an extremely low magnetic footprint. Being based on the TT range of torque wrenches means that they also retain the high standards of Norbar's other Torque Wrenches. Perfect for MRI scanner applications.

4	ADJUSTABLE - DUAL SCALE
13292	TT20, ⅜", 1 - 20 N·m, 10 - 180 lbf·in
13585	TT20, ½", 1 - 20 N·m, 10 - 180 lbf·in
13294	TT50, ⅜", 8 - 50 N·m, 6 - 35 lbf·ft
13295	TT50, ½", 8 - 50 N·m, 6 - 35 lbf·ft

INSULATED TORQUE WRENCH



Using injection moulded Nylon 11, Norbar's insulated torque wrench complies with IEC 60900:2004 and is more durable than the traditional PVC dipped insulated tools. Certified to 1000 volts.

4	ADJUSTABLE - DUAL SCALE
13540	TT60, ⅜", 8 - 60 N·m, 6 - 44 lbf·ft
13541	TT60, ½", 8 - 60 N·m, 6 - 44 lbf·ft

PROFESSIONAL TORQUE WRENCHES MODEL 5



The Model 5 is a unique torque wrench that offers the convenience of interchangeable ¼" hexagon bits. (ISO 1173:1988 Form C drive bits).

- Accuracy exceeds the requirements of ISO6789:2003
- Traceable calibration certificate supplied, to satisfy ISO9000 quality systems
- Non length dependent. The Model 5 remains accurate regardless of hand position
- Supplied in a storage case. The case allows space for the storage of additional drive bits, and optional stepless ratchet

2	ADJUSTABLE
13001	Pro 5, ¼" female hex, 1 - 5 N·m
13002	Pro 5, ¼" female hex, 10 - 50 lbf·in
13003	Pro 5, ¼" female hex, 10 - 50 kgf·cm



Model 5 'P' Type in storage case

Also available as Production 'P' Types, preventing unauthorised alteration of torque setting. No external calibration equipment is required to set the Model 5 'P' Type.

2	PRODUCTION 'P' TYPE
13004	Pro 5, ¼" female hex, 1 - 5 N·m
13005	Pro 5, ¼" female hex, 10 - 50 lbf·in
13006	Pro 5, ¼" female hex, 10 - 50 kgf·cm

8	MODEL 5 ACCESSORY
13122	Stepless Ratchet ¼" Female hex

8	MODEL 5 SPARES
28900	¼" Hex ¼" male square drive

PROFESSIONAL TORQUE WRENCH





Automotive Ratchet



Industrial Ratchet



Unlocked



Locked



Timestrip®



Professional Scale

Since its original, award winning launch in 1984 and extensive face-lift in 2000, Norbar's Professional torque wrench range has become one of the most popular wrench ranges available worldwide. In this re-engineered version, the core principles of accuracy, durability and comfort are carried over but every component part is new and improved.

Compared with the previous Professional models, the new range has these features:

- Accurate to ±3% of reading which meets and exceeds ISO6789:2003
- The scale is 60% larger for better visibility and more accurate setting
- The scale adjusts 40% faster but the effort required to adjust is reduced. If you adjust your wrench regularly, you can do more work
- The lock is now a push/pull type. It is faster and more intuitive to use. A coloured band on the lock clearly shows that the wrench is unlocked
- Improved serviceability means longer life and reduced ownership costs
- The handle has a superior, ergonomic shape and has a higher proportion of soft-feel, high grip material. It is more comfortable to use
- Square drive adaptors are provided with the 50 N·m and 100 N·m Industrial Ratchet models
- 'Industrial Ratchet' versions have a 'mushroom square drive' to allow more rapid bolt run-down
- The 200 N·m 'Automotive Ratchet' version is fitted with a new, high strength 48 tooth reversible ratchet

Compared with other torque wrenches:

Norbar's 'harmonic drive' scale provides a long scale length for good resolution and accurate setting in both scale units. By contrast, micrometer type scales allow accurate setting in the primary scale unit but relatively poor accuracy of setting in the secondary units because of limited resolution. When this is coupled with Norbar's 60% increased scale size, the new Professional wrench is amongst the easiest wrenches on the market to accurately set.

Timestrip® Feature

Torque wrenches should be calibrated once a year as a minimum, more frequently in harsh environments and with high levels of usage. Norbar's Timestrip® gives a visual indication that the wrench is due for re-calibration and has 3, 6, 9 and 12 month graduations. (Timestrip® is a registered trademark of Timestrip UK Ltd).

PROFESSIONAL TORQUE WRENCH





'Mushroom' Square Drive



2	INDUSTRIAL RATCHET ('Mushroom' head) - DUAL SCALE
15002+	Pro 50, ⅜", 10 - 50 N·m, 7.5 - 37.5 lbf·ft
15003-	Pro 100, ½", 20 - 100 N·m, 15 - 75 lbf·ft
15004	Pro 200, ½", 40 - 200 N·m, 30 - 150 lbf·ft
15005	Pro 300, ½", 60 - 300 N·m, 50 - 220 lbf·ft
15006	Pro 340, ½", 60 - 340 N·m, 50 - 250 lbf·ft
15007*	Pro 400, ¾", 80 - 400 N·m, 60 - 300 lbf·ft

2	INDUSTRIAL RATCHET ('Mushroom' head) - N·m ONLY
15042+	Pro 50, ⅜", 10 - 50 N·m
15043-	Pro 100, ½", 20 - 100 N·m
15044	Pro 200, ½", 40 - 200 N·m
15045	Pro 300, ½", 60 - 300 N·m
15046	Pro 340, ½", 60 - 340 N·m
15047*	Pro 400, ¾", 80 - 400 N·m

2	INDUSTRIAL RATCHET ('Mushroom' head) - lbf·ft ONLY
15172+	Pro 50, ⅜", 7.5 - 37.5 lbf·ft
15173-	Pro 100, ½", 15 - 75 lbf·ft
15174	Pro 200, ½", 30 - 150 lbf·ft
15175	Pro 300, ½", 50 - 220 lbf·ft
15176	Pro 340, ½", 50 - 250 lbf·ft
15177*	Pro 400, ¾", 60 - 300 lbf·ft

2	INDUSTRIAL RATCHET ('Mushroom' head) - lbf·in ONLY
15052+	Pro 50, ⅜", 90 - 440 lbf·in
15053-	Pro 100, ½", 200 - 900 lbf·in
15054	Pro 200, ½", 400 - 1800 lbf·in
15055	Pro 300, ½", 500 - 2500 lbf·in
15056	Pro 340, ½", 500 - 3000 lbf·in
15057*	Pro 400, ¾", 700 - 3500 lbf·in

+ Supplied with ⅜" sq. dr. adaptor

- Supplied with ½" sq. dr. adaptor

* Model 400 supplied with Reversible Industrial Ratchet

2	AUTOMOTIVE RATCHET (Reversible) - DUAL SCALE
15012	Pro 50, ⅜", 10 - 50 N·m, 7.5 - 37.5 lbf·ft
15013	Pro 50, ½", 10 - 50 N·m, 7.5 - 37.5 lbf·ft
15014	Pro 100, ⅜", 20 - 100 N·m, 15 - 75 lbf·ft
15015	Pro 100, ½", 20 - 100 N·m, 15 - 75 lbf·ft
15016	Pro 200, ½", 40 - 200 N·m, 30 - 150 lbf·ft

2	AUTOMOTIVE RATCHET (Reversible) - N·m ONLY
15022	Pro 50, ⅜", 10 - 50 N·m
15023	Pro 50, ½", 10 - 50 N·m
15024	Pro 100, ⅜", 20 - 100 N·m
15025	Pro 100, ½", 20 - 100 N·m
15026	Pro 200, ½", 40 - 200 N·m

2	AUTOMOTIVE RATCHET (Reversible) - lbf·ft ONLY
15142	Pro 50, ⅜", 7.5 - 37.5 lbf·ft
15143	Pro 50, ½", 7.5 - 37.5 lbf·ft
15144	Pro 100, ⅜", 15 - 75 lbf·ft
15145	Pro 100, ½", 15 - 75 lbf·ft
15146	Pro 200, ½", 30 - 150 lbf·ft

2	AUTOMOTIVE RATCHET (Reversible) - lbf·in ONLY
15032	Pro 50, ⅜", 90 - 440 lbf·in
15033	Pro 50, ½", 90 - 440 lbf·in
15034	Pro 100, ⅜", 200 - 800 lbf·in
15035	Pro 100, ½", 200 - 800 lbf·in
15036	Pro 200, ½", 400 - 1800 lbf·in





2	TORQUE HANDLES ADJUSTABLE 16mm SPIGOT - DUAL SCALE
15062	Pro 50, 16mm spigot, 10 - 50 N·m, 7.5 - 37.5 lbf·ft
15063	Pro 100, 16mm spigot, 20 - 100 N·m, 15 - 75 lbf·ft
15064	Pro 200, 16mm spigot, 40 - 200 N·m, 30 - 150 lbf·ft
15065	Pro 300, 16mm spigot, 60 - 300 N·m, 50 - 220 lbf·ft

2	TORQUE HANDLES ADJUSTABLE 16mm SPIGOT - N·m ONLY
15072	Pro 50, 16mm spigot, 10 - 50 N·m
15073	Pro 100, 16mm spigot, 20 - 100 N·m
15074	Pro 200, 16mm spigot, 40 - 200 N·m
15075	Pro 300, 16mm spigot, 60 - 300 N·m

2	TORQUE HANDLES ADJUSTABLE 16mm SPIGOT - lbf·ft ONLY
15082	Pro 50, 16mm spigot, 7.5 - 37.5 lbf·ft
15083	Pro 100, 16mm spigot, 15 - 75 lbf·ft
15084	Pro 200, 16mm spigot, 30 - 150 lbf·ft
15085	Pro 300, 16mm spigot, 50 - 220 lbf·ft

2	TORQUE HANDLES ADJUSTABLE 16mm SPIGOT - lbf·in ONLY
15092	Pro 50, 16mm spigot, 90 - 440 lbf·in
15093	Pro 100, 16mm spigot, 200 - 800 lbf·in
15094	Pro 200, 16mm spigot, 400 - 1800 lbf·in
15095	Pro 300, 16mm spigot, 500 - 2500 lbf·in



2	FEMALE TORQUE HANDLES ADJUSTABLE - DUAL SCALE
15102	Pro 50, 9 x 12mm, 10 - 50 N·m, 7.5 - 37.5 lbf·ft
15103	Pro 100, 9 x 12 mm, 20 - 100 N·m, 15 - 75 lbf·ft
15104	Pro 200, 9 x 12 mm, 40 - 200 N·m, 30 - 150 lbf·ft
15105	Pro 200, 14 x 18 mm, 40 - 200 N·m, 30 - 150 lbf·ft
15106	Pro 300, 14 x 18 mm, 60 - 300 N·m, 50 - 220 lbf·ft
15107	Pro 340, 14 x 18 mm, 60 - 340 N·m, 50 - 250 lbf·ft
15108	Pro 400, 14 x 18 mm, 80 - 400 N·m, 60 - 300 lbf·ft

2	FEMALE TORQUE HANDLES ADJUSTABLE - N·m ONLY
15112	Pro 50, 9 x 12mm, 10 - 50 N·m
15113	Pro 100, 9 x 12 mm, 20 - 100 N·m
15114	Pro 200, 9 x 12 mm, 40 - 200 N·m
15115	Pro 200, 14 x 18 mm, 40 - 200 N·m
15116	Pro 300, 14 x 18 mm, 60 - 300 N·m
15117	Pro 340, 14 x 18 mm, 60 - 340 N·m
15118	Pro 400, 14 x 18 mm, 80 - 400 N·m

2	FEMALE TORQUE HANDLES ADJUSTABLE - lbf·ft ONLY
15122	Pro 50, 9 x 12mm, 7.5 - 37.5 lbf·ft
15123	Pro 100, 9 x 12 mm, 15 - 75 lbf·ft
15124	Pro 200, 9 x 12 mm, 30 - 150 lbf·ft
15125	Pro 200, 14 x 18 mm, 30 - 150 lbf·ft
15126	Pro 300, 14 x 18 mm, 50 - 220 lbf·ft
15127	Pro 340, 14 x 18 mm, 50 - 250 lbf·ft
15128	Pro 400, 14 x 18 mm, 60 - 300 lbf·ft

2	FEMALE TORQUE HANDLES ADJUSTABLE - lbf·in ONLY
15132	Pro 50, 9 x 12 mm, 90 - 440 lbf·in
15133	Pro 100, 9 x 12 mm, 200 - 800 lbf·in
15134	Pro 200, 9 x 12 mm, 400 - 1800 lbf·in
15135	Pro 200, 14 x 18 mm, 400 - 1800 lbf·in
15136	Pro 300, 14 x 18 mm, 500 - 2500 lbf·in
15137	Pro 340, 14 x 18 mm, 500 - 3000 lbf·in
15138	Pro 400, 14 x 18 mm, 700 - 3500 lbf·in

CLICKTRONIC TORQUE WRENCH





Automotive Ratchet



Industrial Ratchet



Lock Adjustment Knob



Mini USB



Timestrip®



Digital Scale

A first for our range of torque wrenches, ClickTronic combines the accuracy, durability and comfort from the mechanism of the tried and tested Professional wrench with a new dynamic, easy to use, digital readout all packaged in a sleek, aesthetically appealing product.

- Accurate to ±3% of reading which meets and exceeds ISO6789:2003
- O.L.E.D display provides a clear and easy to read display, which helps to significantly reduce setting errors
- Multiple torque units of measure available
- The lock is now a push/pull type. It is faster and more intuitive to use. A coloured band on the lock clearly shows that the wrench is unlocked
- Utilises a rechargeable lithium battery which is charged using a mini USB lead
- Square drive adaptors are provided with the 50 N·m and 100 N·m Industrial Ratchet models

Timestrip® Feature

Torque wrenches should be calibrated once a year as a minimum, more frequently in harsh environments and with high levels of usage. Norbar's Timestrip® gives a visual indication that the wrench is due for re-calibration and has 3, 6, 9 and 12 month graduations. (Timestrip® is a registered trademark of Timestrip UK Ltd).





Automotive Ratchet

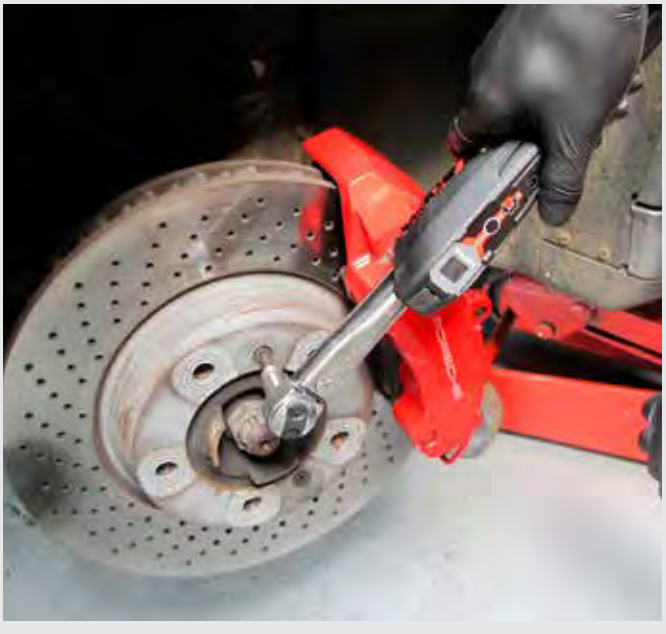
These compact ratchets allow rapid direction change enabling you to, for example, back off a nut that you have tightened. Torque control is in the clockwise direction only.

2	AUTOMOTIVE RATCHET (Reversible)
15152	ClickTronic 50, ⅜", 10 - 50 N·m
15153	ClickTronic 50, ½", 10 - 50 N·m
15154	ClickTronic 100, ⅜", 20 - 100 N·m
15155	ClickTronic 100, ½", 20 - 100 N·m
15156	ClickTronic 200, ½", 40 - 200 N·m

Industrial Ratchet

The square drive of these robust ratchets can be removed and replaced in the other side of the ratchet head so that the wrench will give torque control in both the clockwise and anticlockwise directions.

2	INDUSTRIAL RATCHET (Mushroom Head)
15166	ClickTronic 50, ⅜", 10 - 50 N·m
15167	ClickTronic 100, ½", 20 - 100 N·m
15168	ClickTronic 200, ½", 40 - 200 N·m
15157	ClickTronic 300, ½", 60 - 300 N·m
15158	ClickTronic 340, ½", 68 - 340 N·m





PROFESSIONAL TORQUE WRENCH RATCHET 'P' TYPE

For production line applications requiring a sealed torque setting. 'P' Type wrenches have no scale and must be set against a suitable torque measuring device (see pages 42 - 45).

- Accurate to within ±3% of torque setting
- Colour coded adjustment seals and locking tool provided
- On request 'P' Type wrenches can be set, marked with the setting and certified for production line applications requiring a sealed torque setting.



Part Number 11698



- Push through ratchet allows clockwise and anti-clockwise torque control

2	PRODUCTION 'P' TYPE - INDUSTRIAL RATCHET (Push through square)
13051	Pro 60, ⅜", 8 - 60 N·m, 5 - 45 lbf·ft
13052	Pro 60, ½", 8 - 60 N·m, 5 - 45 lbf·ft
13053	Pro 100, ⅜", 20 - 100 N·m, 15 - 80 lbf·ft
13054	Pro 100, ½", 20 - 100 N·m, 15 - 80 lbf·ft
13055	Pro 200, ½", 40 - 200 N·m, 30 - 150 lbf·ft
13057	Pro 300, ½", 60 - 300 N·m, 45 - 220 lbf·ft
13056	Pro 400, ¾" 80 - 400 N·m, 60 - 300 lbf·ft
11698	Domed End Cap
SQ2222	Pre-set, etch and certify (Allow 3 days delivery for this service)



- Reversible, 72 tooth ratchet

2	PRODUCTION 'P' TYPE AUTOMOTIVE RATCHET (Reversible)
11164	Pro 60, ⅜", 8 - 60 N·m, 5 - 45 lbf·ft
11171	Pro 60, ½", 8 - 60 N·m, 5 - 45 lbf·ft
11138	Pro 100, ⅜", 20 - 100 N·m, 15 - 80 lbf·ft
11139	Pro 100, ½", 20 - 100 N·m, 15 - 80 lbf·ft
11140	Pro 200, ½", 40 - 200 N·m, 30 - 150 lbf·ft
SQ2222	Pre-set, etch and certify (Allow 3 days delivery for this service)

PROFESSIONAL TORQUE HANDLE 'P' TYPE



Setting a 'P' Type Torque Wrench



2	TORQUE HANDLES PRODUCTION 'P' TYPE 16mm SPIGOT
11167	Pro 60, 16mm spigot, 8 - 60 N·m, 5 - 45 lbf·ft
11143	Pro 100, 16mm spigot, 20 - 100 N·m, 15 - 80 lbf·ft
11144	Pro 200, 16mm spigot, 40 - 200 N·m, 30 - 150 lbf·ft
11117	Pro 300, 16mm spigot, 60 - 300 N·m, 45 - 220 lbf·ft
SQ2222	Pre-set, etch and certify (Allow 3 days delivery for this service)



2	FEMALE TORQUE HANDLES PRODUCTION 'P' TYPE
11170	Pro 60, 9 x 12mm, 8 - 60 N·m, 5 - 45 lbf·ft
11150	Pro 100, 9 x 12mm, 20 - 100 N·m, 15 - 80 lbf·ft
11151	Pro 200, 9 x 12mm, 40 - 200 N·m, 30 - 150 lbf·ft
11152	Pro 200, 14 x 18mm, 40 - 200 N·m, 30 - 150 lbf·ft
11153	Pro 300, 14 x 18mm, 60 - 300 N·m, 45 - 220 lbf·ft
13068	Pro 400, 14 x 18mm, 80 - 400 N·m, 60 - 300 lbf·ft
SQ2222	Pre-set, etch and certify (Allow 3 days delivery for this service)

PROFESSIONAL TORQUE WRENCHES MODELS 650 - 1500 ADJUSTABLE



For precision applications to 1500 N·m

- Exceptionally clear torque signal from unique mechanism
- Non length dependant so can be used with or without the supplied extension handle (optional on Model 650)
- Extension handle significantly reduces operator effort to achieve high torque values
- Accurate to ±3% of reading
- Supplied with traceable calibration certificate

2	ADJUSTABLE RATCHET - DUAL SCALE
14037	Pro 650, ¾", 130 - 650 N·m, 100 - 480 lbf·ft
14015	Pro 800, ¾", 200 - 800 N·m, 150 - 600 lbf·ft
14016	Pro 800, 1", 200 - 800 N·m, 150 - 600 lbf·ft
14002	Pro 1000, ¾", 300 - 1000 N·m, 220 - 750 lbf·ft
14003	Pro 1000, 1", 300 - 1000 N·m, 220 - 750 lbf·ft
14004	Pro 1500, ¾", 500 - 1500 N·m, 370 - 1100 lbf·ft
14005	Pro 1500, 1", 500 - 1500 N·m, 370 - 1100 lbf·ft

2	ADJUSTABLE RATCHET - N·m ONLY
14038	Pro 650, ¾", 130 - 650 N·m
14024	Pro 800, ¾", 200 - 800 N·m
14025	Pro 800, 1", 200 - 800 N·m
14026	Pro 1000, ¾", 300 - 1000 N·m
14027	Pro 1000, 1", 300 - 1000 N·m
14028	Pro 1500, ¾", 500 - 1500 N·m
14029	Pro 1500, 1", 500 - 1500 N·m

2	ADJUSTABLE RATCHET - lbf·ft ONLY
14044	Pro 650, ¾", 100 - 480 lbf·ft
14045	Pro 800, ¾", 150 - 600 lbf·ft
14046	Pro 800, 1", 150 - 600 lbf·ft
14047	Pro 1000, ¾", 220 - 750 lbf·ft
14048	Pro 1000, 1", 220 - 750 lbf·ft
14049	Pro 1500, ¾", 370 - 1100 lbf·ft
14050	Pro 1500, 1", 370 - 1100 lbf·ft

PROFESSIONAL TORQUE HANDLES MODELS 650 - 1500 ADJUSTABLE



2	TORQUE HANDLE ADJUSTABLE - DUAL SCALE
14040	Pro 650, 22mm spigot, 130 - 650 N·m, 100 - 480 lbf·ft





2	FEMALE TORQUE HANDLES ADJUSTABLE - DUAL SCALE
14041	Pro 650, 14 x 18mm, 130 - 650 N·m, 100 - 480 lbf·ft



All models supplied in carry case

PROFESSIONAL TORQUE WRENCHES MODELS 650 - 1500 'P' TYPE



2	RATCHET PRODUCTION 'P' TYPE (Must be set using a Torque Tester, see pages 42-45)
14039	Pro 650, ¾", 130 - 650 N·m, 100 - 480 lbf·ft
14017	Pro 800, ¾", 200 - 800 N·m, 150 - 600 lbf·ft
14018	Pro 800, 1", 200 - 800 N·m, 150 - 600 lbf·ft
14007	Pro 1000, ¾", 300 - 1000 N·m, 220 - 750 lbf·ft
14008	Pro 1000, 1", 300 - 1000 N·m, 220 - 750 lbf·ft
14009	Pro 1500, ¾", 500 - 1500 N·m, 370 - 1100 lbf·ft
14010	Pro 1500, 1", 500 - 1500 N·m, 370 - 1100 lbf·ft
SQ2222	Pre-set, etch and certify (Allow 3 days delivery for this service)



8	MODELS 650-1500 ACCESSORY
14142	Extension Handle (included with Models 800-1500 as standard)



2	TORQUE HANDLES PRODUCTION 'P' TYPE (Must be set using a Torque Tester, see pages 42-45)
14042	Pro 650, 22mm spigot, 130 - 650 N·m, 100 - 480 lbf·ft
SQ2222	Pre-set, etch and certify (Allow 3 days delivery for this service)



2	FEMALE TORQUE HANDLES PRODUCTION 'P' TYPE (Must be set using a Torque Tester, see pages 42-45)
14043	Pro 650, 14 x 18mm, 130 - 650 N·m, 100 - 480 lbf·ft
SQ2222	Pre-set, etch and certify (Allow 3 days delivery for this service)

SLIMLINE™ TORQUE WRENCHES ADJUSTABLE

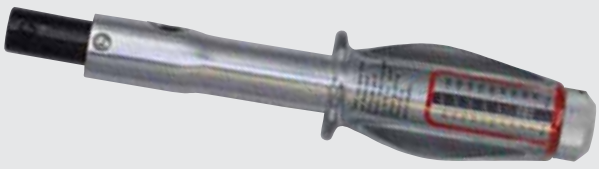


- SL0 torque wrench accuracy exceeds all international standards
- Unmistakable signal when set torque is reached
- Traceable calibration certificate supplied to satisfy ISO9000:2000 quality systems
- High quality 72 tooth ratchet allows use in confined spaces
- Fixed head version has a push through square for left and right handed torque tightening
- Moulded grip aids correct hand location and operator comfort

2	ADJUSTABLE RATCHET - DUAL SCALE
11034	SL0 Steel Knob, ⅜", 1 - 20 N·m, 10 - 180 lbf·in
11037	SL0 Steel Knob, ¼",1 - 20 N·m, 10 - 180 lbf·in
11123	SL0 Plastic Knob, ¼", 4 - 20 N·m, 40 - 180 lbf·in
11087	SL0 Plastic Knob, ⅜", 4 - 20 N·m, 40 - 180 lbf·in



2	ADJUSTABLE - FIXED HEAD- DUAL SCALE
11035	SL0 Steel Knob, ⅜" Fixed Head, 1 - 20 N·m, 10 - 180 lbf·in
11125	SL0 Plastic Knob, ⅜" Fixed Head, 4 - 20 N·m, 40 - 180 lbf·in



Torque Handle versions are available for both 16mm spigot and 9 x 12mm fittings.

2	TORQUE HANDLE ADJUSTABLE - DUAL SCALE
11036	SL0 16mm spigot, 1 - 20 N·m, 10 - 180 lbf·in
11126	SL0 16mm spigot, 4 - 20 N·m, 40 - 180 lbf·in
11122	SL0 9 x 12mm female, 4 - 20 N·m, 40 - 180 lbf·in

SLIMLINE™ TORQUE WRENCHES 'P' TYPE



Production 'P' type versions are designed to discourage unauthorised alteration. They have no scale and so must be set against a torque testing device such as Norbar's TruCheck™ - see page 42.

2	PRODUCTION 'P' TYPE (Must be set using a Torque Tester, see pages 42-45)
11089	SL0 ⅜" Fixed Head, 1 - 20 N·m, 10 - 180 lbf·in
11085	SL0 ¼", 1 - 20 N·m, 10 - 180 lbf·in
11086	SL0 ⅜", 1 - 20 N·m, 10 - 180 lbf·in
11090	SL0 16mm spigot, 1 - 20 N·m, 10 - 180 lbf·in
11088	SL0 9 x 12mm female, 1 - 20 N·m, 10 - 180 lbf·in
SQ2222	Pre-set, etch and certify (Allow 3 days delivery for this service)



INDUSTRIAL TORQUE WRENCHES ADJUSTABLE





For ultimate torque control in heavy duty applications

- Unique 'break action' mechanism gives unparalleled control over the applied torque
- Perfect for wheel nuts and many other applications
- Accurate to ±4% of reading
- Supplied with traceable calibration certificate
- Split versions available for when storage space is limited such as vehicle tool kits
- 2000 N·m 6R, see 'split' versions on page 18

2	RATCHET ADJUSTABLE - DUAL SCALE
12001	3AR, ¾", 100 - 500 N·m, 70 - 350 lbf·ft
12001.01	3AR, 1", 100 - 500 N·m, 70 - 350 lbf·ft
12006	4R, ¾", 150 - 700 N·m, 100 - 500 lbf·ft
12006.01	4R, 1", 150 - 700 N·m, 100 - 500 lbf·ft
12007	4AR, ¾", 200 - 800 N·m, 150 - 600 lbf·ft
12007.01	4AR, 1", 200 - 800 N·m, 150 - 600 lbf·ft
12009	5R, ¾", 300 - 1000 N·m, 200 - 750 lbf·ft
12009.01	5R, 1", 300 - 1000 N·m, 200 - 750 lbf·ft
12012	5AR, ¾", 700 - 1500 N·m, 500 - 1000 lbf·ft
12012.01	5AR, 1", 700 - 1500 N·m, 500 - 1000 lbf·ft

2	RATCHET ADJUSTABLE - N·m ONLY
12105	4AR, ¾", 200 - 800 N·m
12106	4AR, 1", 200 - 800 N·m
12107	5R, ¾", 300 - 1000 N·m
12108	5R, 1", 300 - 1000 N·m

2	TORQUE HANDLE ADJUSTABLE - DUAL SCALE
12003*	No.4, 22mm spigot, 130 - 550 N·m, 100 - 400 lbf·ft

*Carry case not included

INDUSTRIAL TORQUE WRENCH - BI-SQUARE



The 1 1/16" Bi-square version of the Industrial Torque Wrench was developed specifically with rail track maintenance in mind. The critical need of the rail industry is to reduce the chance of any object being left on the track. Fitting directly onto rail fishplate bolts means that no socket or square drive is required, two components that could potentially be separated from the regular version of the Industrial Torque Wrench.

Other versions of this tool available on request

2	BI-SQUARE - DUAL SCALE
12026	1 1/16" Bi-Square, 300 - 1000 N·m, 200 - 750 lbf·ft

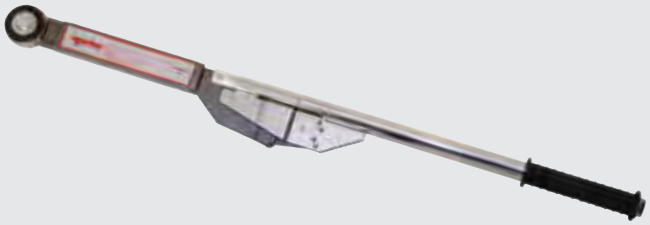
INDUSTRIAL TORQUE WRENCHES - SPLIT



Split Industrials are supplied in two parts for easier transportation and storage, but can be assembled and disassembled in seconds.

2	RATCHET SPLIT ADJUSTABLE - DUAL SCALE
12102	4R, ¾", 150 - 700 N·m, 100 - 500 lbf·ft
12102.01	4R, 1", 150 - 700 N·m, 100 - 500 lbf·ft
12101	5R, ¾", 300 - 1000 N·m, 200 - 750 lbf·ft
12101.01	5R, 1", 300 - 1000 N·m, 200 - 750 lbf·ft
12100	6R, 1", 900 - 2000 N·m, 700 - 1500 lbf·ft

INDUSTRIAL TORQUE WRENCHES 'P' TYPE

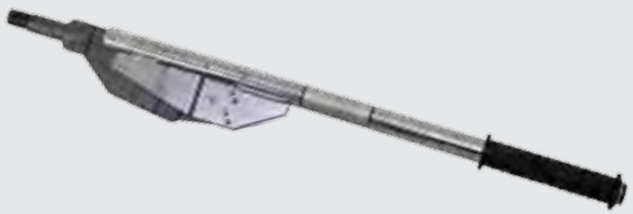




Production 'P' type versions are designed to discourage unauthorised alteration. They have no scale and so must be set against a torque testing device such as Norbar's TruCheck™ - see page 43.

- Unique 'break action' mechanism gives unparalleled control over the applied torque
- Perfect for wheel nuts and many other applications
- Accurate to ±4% of reading

2	RATCHET PRODUCTION 'P' TYPE (Must be set using a Torque Tester, see pages 42-45)
12015	3AR, ¾", 100 - 500 N·m, 70 - 350 lbf·ft
12020	4R, ¾", 150 - 700 N·m, 100 - 500 lbf·ft
12023	5R, ¾", 300 - 1000 N·m, 200 - 750 lbf·ft
12002	5AR, ¾", 700 - 1500 N·m, 500 - 1000 lbf·ft
SQ2222	Pre-set, etch and certify (Allow 3 days delivery for this service)



2	TORQUE HANDLE 'P' TYPE (Must be set using a Torque Tester, see pages 42-45)
12017	No.4, P Type, 22mm spigot, 130 - 550 N·m, 100 - 400 lbf·ft
SQ2222	Pre-set, etch and certify (Allow 3 days delivery for this service)

Carry case not included

INDUSTRIAL TORQUE WRENCH SQUARE DRIVES



8	INDUSTRIAL SPARE SQUARE DRIVES
12297	¾" Square Drive Assy for 3AR - 5AR
12299	1" Square Drive Assy for 3AR - 5AR
18492	1" Square Drive for 6R

UKAS ACCREDITED CALIBRATION CERTIFICATION

See pages 68-69 for Norbar's Calibration Services.

12	ONE DIRECTION
TWCC4.CW	Up to 400 N·m/300 lbf·ft
TWCC5.CW	Up to 1000 N·m/750 lbf·ft
TWCC6.CW	Up to 3000 N·m/2200 lbf·ft

12	TWO DIRECTIONS
TWCC4.CW+CCW	Up to 400 N·m/300 lbf·ft
TWCC5.CW+CCW	Up to 1000 N·m/750 lbf·ft
TWCC6.CW+CCW	Up to 3000 N·m/2200 lbf·ft

ELECTRODE WRENCHES



For torque tightening of carbon electrodes.

Standard torque settings are shown. Other settings are available. The 8" Diameter electrode wrench uses the professional torque handle as the control mechanism. Above 8" the Industrial wrench is used as the control mechanism.

9	LOW RANGE
12506	8" (200mm) 312 N·m
12530	10" (250mm) 542 N·m
12531	12" (300mm) 780 N·m

Other models available on request.

9	HIGH RANGE
12532	14" (350mm) 1140 N·m
12533	16" (400mm) 1300 N·m
12535	18" (450mm) 1500 N·m
12536	20" (500mm) 2000 N·m
12537	22" (550mm) 2370 N·m
12538	24" (600mm) 2370 N·m
12538.HD	24" (600mm) 3200 N·m



SPANNER END FITTINGS FOR NORBAR 16mm TORQUE HANDLES

On this page you will find our standard range of end fittings.
For other sizes, see page 22 & 23.



2	OPEN ENDS METRIC
29841	7mm
29842	8mm
29843	9mm
29844	10mm
29845	11mm
29846	12mm
29847	13mm
29848	14mm
29849	15mm
29850	16mm
29851	17mm
29876	18mm
29877	19mm
29852	20mm
29853	21mm
29854	22mm
29855	23mm
29856	24mm
29857	25mm
29858	26mm
29878	27mm
29860	29mm
29861	30mm
29863	32mm

2	OPEN ENDS IMPERIAL
29701	¼"
29702	5/16"
29703	3/8"
29704	7/16"
29705	½"
29706	9/16"
29707	5/8"
29708	11/16"
29709	¾"
29710	13/16"
29711	7/8"
29712	15/16"
29713	1"
29714	1 1/16"
29715	1 1/8"
29716	1 3/16"
29717	1 ¼"
29718	1 5/16"



2	RING ENDS METRIC
29881	7mm
29882	8mm
29883	9mm
29884	10mm
29885	11mm
29886	12mm
29887	13mm
29888	14mm
29889	15mm
29890	16mm
29891	17mm
29913	18mm
29914	19mm
29892	20mm
29893	21mm
29894	22mm
29895	23mm
29896	24mm
29915	27mm

2	RING ENDS IMPERIAL
29726	¼"
29727	5/16"
29728	3/8"
29729	7/16"
29730	½"
29731	9/16"
29732	5/8"
29733	11/16"
29734	¾"
29735	13/16"
29736	7/8"
29737	15/16"
29738	1"
29739	1 1/16"

SPANNER END FITTINGS FOR NORBAR 22mm TORQUE HANDLES



2	OPEN ENDS METRIC
29963.22	22mm Open End
29963.24	24mm Open End
29963.27	27mm Open End
29963.30	30mm Open End
29963.32	32mm Open End
29963.36	36mm Open End
29963.41	41mm Open End
29963.46	46mm Open End



2	RING ENDS METRIC
29960.22	22mm Ring End
29960.24	24mm Ring End
29960.27	27mm Ring End
29960.30	30mm Ring End
29960.32	32mm Ring End
29960.36	36mm Ring End
29960.41	41mm Ring End
29960.46	46mm Ring End

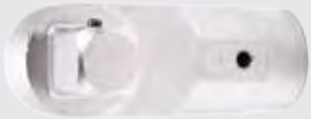


2	FLARE ENDS METRIC
29921	7mm
29922	8mm
29923	9mm
29924	10mm
29925	11mm
29926	12mm
29927	13mm
29928	14mm
29929	15mm
29930	16mm
29931	17mm
29953	18mm
29954	19mm
29932	20mm
29933	21mm
29934	22mm
29935	23mm
29936	24mm
29955	27mm

SPIGOT ACCESSORIES



2	16mm SPIGOT ACCESSORIES
44509	⅜" Ratchet with Push through square
29825	½" Ratchet with Push through square
29828	⅜" Fixed Square Drive
29827	½" Fixed Square Drive
29829	⅜" Reversible Ratchet Head
29830	½" Reversible Ratchet Head
29832	Blank End Fitting
85242	Blank End Fitting for Open End
11343	Blank End Fitting for Ring End
72000	Spigot Adaptor 16mm to 22mm



2	22mm SPIGOT ACCESSORIES
29969	¾" Square Drive Fixed Head
29972	¾" Ratchet with Push through square
85719	Blank End Fitting for Open End
85720	Blank End Fitting for Ring End



LARGE SPANNER END FITTINGS FOR NORBAR 16mm TORQUE HANDLES UP TO 300 N·m

See page 23 for explanation of Part Numbers. Other sizes available on request.



2	OPEN OFFSET METRIC 16mm	2	OPEN OFFSET IMPERIAL 16mm
29200.Mxx	28 - 42 mm	29200.Ixx	1 1/8" - 1 5/8"
29200.Mxx	43 - 54 mm	29200.Ixx	1 11/16" - 2 1/8"
29200.Mxx	55 - 70 mm	29200.Ixx	2 3/16" - 2 3/4"



2	FLARE OFFSET METRIC 16mm	2	FLARE OFFSET IMPERIAL 16mm
29204.Mxx	25 - 39 mm	29204.Ixx	1" - 1 1/2"
29204.Mxx	40 - 49 mm	29204.Ixx	1 9/16" - 1 15/16"
29204.Mxx	50 - 70 mm	29204.Ixx	2" - 2 3/4"



2	RING OFFSET METRIC 16mm	2	RING OFFSET IMPERIAL 16mm
29202.Mxx	25 - 39 mm	29202.Ixx	1" - 1 1/2"
29202.Mxx	40 - 49 mm	29202.Ixx	1 9/16" - 1 15/16"
29202.Mxx	50 - 70 mm	29202.Ixx	2" - 2 3/4"



2	OPEN INLINE METRIC 16mm	2	OPEN INLINE IMPERIAL 16mm
29201.Mxx	25 - 42 mm	29201.Ixx	1 1/8" - 1 5/8"
29201.Mxx	43 - 54 mm	29201.Ixx	1 11/16" - 2 1/8"
29201.Mxx	55 - 70 mm	29201.Ixx	2 3/16" - 2 3/4"

LARGE SPANNER END FITTINGS FOR NORBAR 22mm TORQUE HANDLES UP TO 650 N·m

See page 23 for explanation of Part Numbers. Other sizes available on request.



2	OPEN OFFSET METRIC 22mm	2	OPEN OFFSET IMPERIAL 22mm
29206.Mxx	28 - 55 mm	29206.Ixx	1 1/8" - 2 1/8"
29206.Mxx	56 - 88 mm	29206.Ixx	2 3/16" - 3 7/16"



2	FLARE OFFSET METRIC 22mm	2	FLARE OFFSET IMPERIAL 22mm
29210.Mxx	28 - 51 mm	29210.Ixx	1 1/8" - 1 15/16"
29210.Mxx	52 - 88 mm	29210.Ixx	2" - 3 7/16"



2	RING OFFSET METRIC 22mm	2	RING OFFSET IMPERIAL 22mm
29208.Mxx	28 - 51 mm	29208.Ixx	1 1/8" - 1 15/16"
29208.Mxx	52 - 88 mm	29208.Ixx	2" - 3 7/16"



2	OPEN INLINE METRIC 22mm	2	OPEN INLINE IMPERIAL 22mm
29207.Mxx	28 - 55 mm	29207.Ixx	1 1/8" - 2 1/8"
29207.Mxx	56 - 88 mm	29207.Ixx	2 3/16" - 3 7/16"



2	RING INLINE METRIC 16mm	2	RING INLINE IMPERIAL 16mm
29203.Mxx	25 - 39 mm	29203.Ixx	1" - 1 ½"
29203.Mxx	40 - 51 mm	29203.Ixx	1 9/16" - 2"
29203.Mxx	52 - 70 mm	29203.Ixx	2 1/16" - 2 ¾"



2	FLARE INLINE METRIC 16mm	2	FLARE INLINE IMPERIAL 16mm
29205.Mxx	25 - 39 mm	29205.Ixx	1" - 1 ½"
29205.Mxx	40 - 51 mm	29205.Ixx	1 9/16" - 2"
29205.Mxx	52 - 70 mm	29205.Ixx	2 1/16" - 2 ¾"



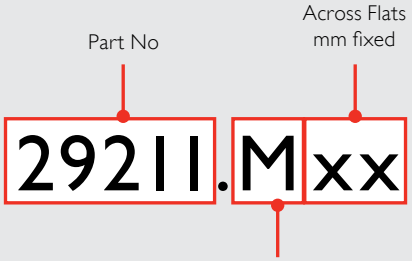
2	RING INLINE METRIC 22mm	2	RING INLINE IMPERIAL 22mm
29209.Mxx	28 - 44 mm	29209.Ixx	1 1/8" - 1 ¾"
29209.Mxx	45 - 88 mm	29209.Ixx	1 13/16" - 3 7/16"



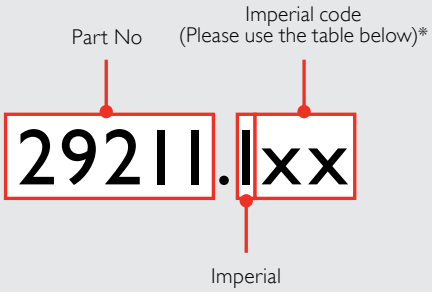
2	FLARE INLINE METRIC 22mm	2	FLARE INLINE IMPERIAL 22mm
29211.Mxx	28 - 44 mm	29211.Ixx	1 1/8" - 1 ¾"
29211.Mxx	45 - 88 mm	29211.Ixx	1 13/16" - 3 7/16"

PART NUMBERS FOR LARGE SPANNER END FITTINGS EXPLAINED

METRIC



IMPERIAL



*Example: 1 7/8" Open Inline for 22mm Spigot = 29207.I30

IMPERIAL A/F	CODE
5/16"	05
3/8"	06
7/16"	07
½"	08
9/16"	09
5/8"	10
11/16"	11
¾"	12
13/16"	13
7/8"	14
15/16"	15
1"	16
1 1/16"	17
1 1/8"	18
1 3/16"	19
1 ¼"	20
1 5/16"	21
1 3/8"	22
1 7/16"	23
1 ½"	24
1 9/16"	25
1 5/8"	26
1 11/16"	27
1 ¾"	28
1 13/16"	29
1 7/8"	30

IMPERIAL A/F	CODE
1 15/16"	31
2"	32
2 1/16"	33
2 1/8"	34
2 3/16"	35
2 ¼"	36
2 5/16"	37
2 3/8"	38
2 7/16"	39
2 ½"	40
2 9/16"	41
2 5/8"	42
2 11/16"	43
2 ¾"	44
2 13/16"	45
2 7/8"	46
2 15/16"	47
3"	48
3 1/16"	49
3 1/8"	50
3 3/16"	51
3 ¼"	52
3 5/16"	53
3 3/8"	54
3 7/16"	55

HANDTORQUE® TORQUE MULTIPLIERS

Norbar gearboxes are built to an extremely high standard of precision. All gears rotate on needle roller bearings about hardened and ground journal pins. As a result, Norbar HandTorques can be relied upon to have a torque multiplication accuracy of ±4%, throughout the operating range, taking the uncertainty out of high torque tightening.

No gearbox is 100% efficient and so the velocity ratio (the number of turns that the input has to make to achieve one revolution of the output) is not the same as the torque multiplication ratio. Norbar multipliers are engineered such that each gear stage has a velocity ratio of typically 5.45:1 which results in a true torque multiplication factor of 5:1.

Torque output calculations are therefore a matter of simple arithmetic with little risk of incorrect bolt loading due to conversion errors. Other manufacturers' multipliers often require graphs or formulae to calculate the input torque to achieve a particular output.

The Norbar HandTorque® is the most comprehensive multiplier range available. Standard products are available up to 47,500 N·m (35,000 lbf·ft) and 'specials' to 300,000 N·m (220,000 lbf·ft). A range of 'nose extensions' for reaching difficult to access bolts and full range of torque transducers for highly accurate torque monitoring are available.

HandTorque® HT3 Series	24
HandTorque® HT4 Series	25
HandTorque® Standard Series	25
HandTorque® Compact Series	26
HandTorque® HTM-72 with Integral Transducer	27
HandTorque® Small Diameter Series	27

HANDTORQUE® HT3 SERIES





- 5:1 torque multiplication, accuracy ±4%
- Supplied with two reaction bar styles for maximum versatility
- Robust construction means minimal maintenance and long life
- Supplied in a carry case, the Highwayman is ideal for inclusion in the heavy vehicle tool kit
- 1300 N·m version has a spare ¾" output square included in the kit
- Multiplier head only (no reaction bars or plastic box) also available 1300 N·m version, part no. 17218.
  2700 N·m version, part no. 17219

2	HT3 SERIES
17220	HT3 1300 N·m Kit ½" input x ¾" output
17221	HT3 2700 N·m Kit ¾" input x 1" output

Kits are supplied in a carrying case with a reaction bar and a reaction foot (17220 also contains a spare ¾" sq. dr.)



HANDTORQUE® HT4 SERIES



- Robust construction means minimal maintenance and long life
- True 15.5:1 (3000 N·m) or 26:1 (4500 N·m) torque multiplication, accuracy ±4%.
- High ratios allow the use of a small torque wrench
- Supplied in carrying case with replacement square drive
- Anti Wind-Up Ratchet fitted to allow safer and more practical operation
- Angle protractor for easy torque and angle tightening

4	HT4 SERIES
17022	HT4 3000 N·m ½" in 1" out AWUR
17021	HT4 4500 N·m ½" in 1" out AWUR



HANDTORQUE® STANDARD SERIES



- Torque multiplication accuracy ±4%
- High ratios allow the use of a small torque wrench, multipliers can be used where access is limited
- Anti Wind-Up Ratchet available on models of 25:1 ratio and above
- Other reaction styles can be designed to suit specific applications
- Electronic torque transducers can be fitted for precise torque monitoring, see page 49
- Other models available up to 300,000 N·m

4	STANDARD SERIES
16010	HT 1/5 1700 N·m ½" in ¾" out
16012.HD	HT 2/5 1700 N·m ¾" in 1" out
16034.HD	HT 2/25 1700 N·m ½" in 1" out
16089.HD	HT 2/25 1700 N·m ½" in 1" out AWUR
16014	HT 5/5 3400 N·m ¾" in 1" out
16028	HT 5/25 3400 N·m ½" in 1" out
16090	HT 5/25 3400 N·m ½" in 1" out AWUR
16016	HT 6/5 3400 N·m ¾" in 1½" out
16024	HT 6/25 3400 N·m ½" in 1½"out
16092	HT 6/25 3400 N·m ½" in 1½"out AWUR
16093	HT 6/125 3400 N·m ½" in 1½"out AWUR
16067	HT 7/5 6000 N·m ¾" in 1½"out
16018	HT 7/25 6000 N·m ½" in 1½"out
16065	HT 7/25 6000 N·m ½" in 1½"out AWUR
16068	HT 7/125 6000 N·m ½" in 1½"out AWUR
16059	HT 9/25 9500 N·m ¾" in 1½" out
16070	HT 9/25 9500 N·m ¾" in 1½" out AWUR
16071	HT 9/125 9500 N·m ½" in 1½" out AWUR
16082	HT 11/25 20000 N·m ¾" in 2½" out
16049	HT 11/125 20000 N·m ½" in 2½" out AWUR
18085	HT 12/87.5 34000 N·m ¾" in 2½" out AWUR
16053	HT 13/125 47500 N·m ¾" in 2½" out AWUR

Other gear ratios may be available upon request.
If AWUR is not required please enquire for part number.
HT 13/125 fitted with Weld Prepared Reaction Ring as standard.
AWUR = Anti Wind Up Ratchet.

For Spares Kits for Norbar Multipliers, please see page 66.

HANDTORQUE® COMPACT SERIES







SpinNor included
Part No. 19253

- Compact dimensions allow excellent access to applications and easy, safe handling
- Lightweight for torque capacity
- Supplied as standard with an aluminium reaction arm. Other options are available on request, including customised reactions
- Torque multiplication accuracy ±4%
- Robust, 48 tooth Anti Wind-Up Ratchet (AWUR) contains the forces generated during tightening for safe and easy operation
- Each multiplier is supplied with its own unique calibration certificate allowing the accurate calculation of input torque for critical applications

Multiplier & Torque Wrench Kits

For convenience, it is now possible to purchase a torque multiplier from the 'Compact Series' packaged with the appropriate torque wrench, up to 4000 N·m. This allows the operator to arrive at the bolting application with everything needed in one robust carry case. Space has also been allowed in the carry case for accessories such as sockets.

The torque wrench and torque multiplier are each supplied with their own unique calibration certificate, allowing accurate calculation of input torque to the multiplier for critical applications.

- All kits include a 'SpinNor' which aids fast reaction location
- All models include an Anti Wind-up Ratchet on the Multiplier

4	COMPACT SERIES
180200	HT-52/4.5 1000 N·m ½" in ¾" out
180201	HT-52/22 1000 N·m ⅜" in ¾" out
180202	HT-52/22 1000 N·m ½" in ¾" out
180203	HT-52/22 1000 N·m ⅜"in ¾" out AWUR
180204	HT-52/22 1000 N·m ½" in ¾" out AWUR
180205	HT-52/22 1000 N·m ⅜" in 1" out AWUR
180206	HT-52/22 1000 N·m ½" in 1" out AWUR
180208	HT-72/5 1500 N·m ½" in 1" out
180209	HT-72/5 1000 N·m ¾" in ¾" out
180210	HT-72/5 2000 N·m ¾" in 1" out
180212	HT-72/27 2000 N·m ½" in 1" out
180214	HT-72/27 2000 N·m ½" in 1" out AWUR
180215	HT-92/25 4000 N·m ½" in 1" out AWUR
180216	HT-119/25 7000 N·m ½" in 1½" out AWUR

4	HT COMPACT SERIES & TORQUE WRENCH KITS
18186	HT52 1000 N·m ¾" out + TTi60 ½"
18185	HT52 1000 N·m ¾" out + TTi60 ½" N·m only
18184	HT52 1000 N·m ¾" out + TTi45 ½" lbf·ft only
18189	HT52 1000 N·m 1" out + TTi60 ½"
18188	HT52 1000 N·m 1" out + TTi60 ½" N·m only
18187	HT52 1000 N·m 1" out + TTi45 ½" lbf·ft only
18192	HT72 2000 N·m 1" out + TTi100 ½"
18191	HT72 2000 N·m 1" out + TTi100 ½" N·m only
18190	HT72 2000 N·m 1" out + TTi75 ½" lbf·ft only
18195	HT92 4000 N·m 1" out + TTi200 ½"
18194	HT92 4000 N·m 1" out + TTi200 ½" N·m only
19253	½" SpinNor

HANDTORQUE® HTM-72 WITH INTEGRAL TRANSDUCER



- A UKAS accredited certificate of calibration is supplied with each multiplier as standard
- When the calibration is performed with a T-Box XL™, TTT, TST, Pro-Log or TTL-HE display the multiplier can be interchanged between similar displays without affecting the validity of the calibration
- Compact dimensions allow easy access and handling
- Anti Wind-Up Ratchet (AWUR) keeps the multiplier loaded for easier and safe operation
- Integrated transducer for accurate torque application; separate torque display required
- Environmentally sealed to IP55 rating

TRS-65

- Battery Life - 45 hours
- Display - 5 digit LCD 8.8mm high
- Handheld and lightweight
- Ranges of N·m and lbf·ft (as standard)
- Peak and Trough hold
- Environmentally sealed to IP65 rating



4	HTM AND TRS-65
18183	HTM-72/25 2000 N·m with Integral TD, ½" in 1" out
18183.TRS	HTM-72/25 2000 N·m Kit, TRS-65 Display, Lead and Case, ½" in 1" out

18183 supplied with UKAS accredited calibration certificate (20%-100%)

HANDTORQUE® SMALL DIAMETER SERIES



- HandTorque® models HT30 and 60 have a higher torque output for a given gearbox diameter than the Standard Series
- Reduced diameter enables better access, particularly on pipe flanges
- Reaction taken from high strength spline
- Reaction foot can slide on the spline to allow sockets of various lengths
- Anti Wind-Up Ratchet available on all models (except 5:1 ratios), allowing safer and more practical operation

4	SMALL DIAMETER SERIES
18003	HT 30/5 3000 N·m ¾" in 1" out
18004	HT 30/15 3000 N·m ½" in 1" out AWUR
18006	HT 30/25 3000 N·m ½" in 1" out AWUR
18008	HT 60/25 6000 N·m ½" in 1½" out AWUR

HT30s and 60s are supplied with a cranked reaction foot. Most small diameter gearboxes are available without AWUR. Please enquire for part numbers.

UKAS ACCREDITED CALIBRATION

The part numbers shown below are for 'As Found', for new Manual Torque Multiplying Gearboxes up to the maximum capacity shown.

12	ONE DIRECTION
HTCC2.CW	Up to 6000 N·m/5000 lbf·ft

12	TWO DIRECTIONS
HTCC2.CW+CCW	Up to 6000 N·m/5000 lbf·ft

POWERED TORQUE MULTIPLIERS

The EvoTorque® is an electronic torque tool designed for applying torque to threaded fasteners. The unique 'Intelligent Joint Sensing' technology will accurately tighten to the correct torque without the risk of excess overshoot or undershoot that is common in other electric tools.

EvoTorque® utilises patent pending motor technology to give unprecedented joint control from hard through to soft joints. Water and dust sealed to IP44 the tool has third party sound verification (L_{pA}) that does not exceed 72.3 dB(A) and a vibration level of 0.304m/s² for smooth and quiet delivery.

Models are available from 1000 N·m to 6000 N·m in both 110V and 230V.

PneuTorque® operation is quiet - less than 85dB(A) with absolutely no impacting. These two factors make PneuTorques comfortable for the operator to use, reducing fatigue and consequently increasing safety.

PneuTorques provide accurate torque control - on a given joint they will stall repeatably to within ±5%. Using electronic shut off, this repeatability can be improved to ±2%.

The PneuTorque® consists of a robust air motor driving a Norbar multiplier with three or more stages of epicyclic gearing.

Torque control is achieved by adjustment of the air pressure. An air pressure versus torque graph and a calibration certificate is supplied with each tool and allows specific torque values to be set. For more critical applications, PneuTorques can be fitted with a torque transducer and the precise torque output displayed. The tool can then be shut off at the desired torque either manually or automatically using suitable control circuitry.

Models are available up to 300,000 N·m (220,000 lbf·ft).

EvoTorque®	28
EvoTorque® 2	30
TrukTorque™	32
PneuTorque® PTM-52 Series	32
PneuTorque® PTM-72 Series	33
PneuTorque® PTME-72 Series	33
PneuTorque® PTM-92 and PTM-119 Series	34
PneuTorque® PTM Dual Trigger	34
PneuTorque® PT-72 Series	35
PneuTorque® PT-72 Remote Control Series	35
PneuTorque® Standard Series	36
Lubro Control Units	37
Tool Controllers	38
Nose Extensions	38
Optional Reaction Plates / Accessories for Multipliers	40

EVOTORQUE®









Standard Box



Optional Peli Case
Part No. 26969 or 26971



ET-72



ET-92



ET-119

Utilising patent pending motor technology EvoTorque® is the most accurate, robust and user friendly electronic torque tool, and offers unprecedented joint control.

- Intelligent joint sensing detects hard and soft joints and responds accordingly
- Clear Go/No-Go Joint completion feature
- Certified Torque and Angle calibration and control
- Backlit LCD mono display
- 200 N·m – 6000 N·m range capability in five models
- 110V and 230V models
- IP44 protection against dust and water ingress
- Tried and tested gearbox
- Supplied in cardboard box as standard

The EvoTorque® is supplied in a cardboard box as standard, if a sturdier case is required Norbar can provide a Peli Case (at an additional charge). Please quote one of the following part numbers when ordering: 26969 (up to 2000 N·m tool) or 26971 (4000 & 6000 N·m tool).
For more EvoTorque® reactions see pages 40-41

II	EVOTORQUE® - 110 V
18165.B06	ET-72-1000-110 ¾" sq. dr., 200 - 1000 N·m
18166.B06	ET-72-1350-110 ¾" sq. dr., 270 - 1350 N·m
18167.B08	ET-72-2000-110 1" sq. dr., 400 - 2000 N·m
18169.B08	ET-92-4000-110 1" sq. dr., 800 - 4000 N·m
18171.B12	ET-119-6000-110 1½" sq. dr., 1200 - 6000 N·m

II	EVOTORQUE® - 230 V
18151.B06	ET-72-1000-230 ¾" sq. dr., 200 - 1000 N·m
18152.B06	ET-72-1350-230 ¾" sq. dr., 270 - 1350 N·m
18153.B08	ET-72-2000-230 1" sq. dr., 400 - 2000 N·m
18155.B08	ET-92-4000-230 1" sq. dr., 800 - 4000 N·m
18157.B12	ET-119-6000-230 1½" sq. dr., 1200 - 6000 N·m

EVOTORQUE® 2





Colour OLED display shows torque and angle values



Display can be powered up independently of tool for data transfer (via USB)





Built in Bluetooth® for wireless data transfer





Communication between tool and PC either wirelessly using Bluetooth® 4.0 or wired using supplied USB cable



Standard Box



Optional Peli Case
Part No. 26969 for tools up to 2000 N·m
Part No, 26971 for 4000 N·m and 6000 N·m tools

The EvoTorque® 2 is an electronic torque tool designed for accurately applying torque to threaded fasteners. Tools are factory calibrated to ±3% of reading. The unique 'intelligent joint sensing' technology continually measures the joint during tightening and, when necessary, employs dynamic braking to avoid torque over-shoot due to motor inertia. Consequently, EvoTorque® can apply torque accurately over a wide range of joint rates from hard (high torque rate) through to soft (low torque rate). All EvoTorque® tools are highly tolerant of supply voltage and frequency variation. When the tool runs, it will run accurately. If the supply voltage is outside of tolerance then, as a safety feature, the tool will be prevented from starting.

The EvoTorque® 2 has the ability to memorise multiple targets, work IDs, user IDs and readings. A work sequence (flow) can be performed on the EvoTorque® 2, taking the user through a pre-defined tightening sequence. The tool has three modes of operation: Torque, Torque and Angle and Torque Audit. The unique Audit Mode is a sophisticated feature for testing pre-tightened bolts with minimal impact on the original fastening torque and can provide quality control data for monitoring joint performance over time. EvoTorque® 2 builds on the original tool with these additional features:

- Backlit OLED colour display, clearly visible even in poor lighting
- Display and on-board storage of final torque or torque and angle values
- 3000 reading memory, time and date stamped
- USB and Bluetooth® 4.0 data transfer (also called Bluetooth® Smart)
- Complementary PC software 'EvoLog' for data management and tool configuration
- 12 user IDs can be downloaded to the tool and results can be stored against individual users
- Capacity for setting 20 stand-alone targets plus 1 work sequence target on the tool
- Results can be uploaded in real time
- Results can be output in CSV (comma-separated values) format for users not able to use EvoLog
- Calibrated from 20% to 100% of tool range. In Torque Mode, targets from 20% of tool maximum can be set
- In Torque and Angle Mode and Audit Mode, torque can be set from 10% of tool maximum

For more EvoTorque® 2 reactions see pages 40-41.

11	EVOTORQUE® 2 - 110 V
180230	ET2-72-1000-110 ¾" sq. dr., 200 - 1000 N·m
180231	ET2-72-1350-110 ¾" sq. dr., 270 - 1350 N·m
180232	ET2-72-2000-110 1" sq. dr., 400 - 2000 N·m
180233	ET2-72-2700-110 1" sq. dr., 540 - 2700 N·m
180234	ET2-92-4000-110 1" sq. dr., 800 - 4000 N·m
180235	ET2-119-6000-110 1½" sq. dr., 1200 - 6000 N·m

11	EVOTORQUE® 2 - 230 V
180220	ET2-72-1000-230 ¾" sq. dr., 200 - 1000 N·m
180221	ET2-72-1350-230 ¾" sq. dr., 270 - 1350 N·m
180222	ET2-72-2000-230 1" sq. dr., 400 - 2000 N·m
180223	ET2-72-2700-230 1" sq. dr., 540 - 2700 N·m
180224	ET2-92-4000-230 1" sq. dr., 800 - 4000 N·m
180225	ET2-119-6000-230 1½" sq. dr., 1200 - 6000 N·m

PNEUTORQUE® PTM SERIES

Using twin motor technology, the PTM series of PneuTorques is engineered to be amongst the lightest and fastest on the market. For example, the 800 N·m version has a gearbox diameter of just 52mm, allowing excellent bolt access, and has a maximum free running speed of 224 rpm. Torque control is normally achieved by adjustment of air pressure. An air pressure versus torque graph and a calibration certificate is supplied with each tool.
PTM-52, PTM-72 and PTME-72 also offer the option of electronic torque control in two versions. Both versions incorporate a torque transducer on the output of the tool. Internal Control (IC) tools have a torque display, user interface and a solenoid valve to shut-off the air supply at a pre-determined torque. External Control (EC) tools incorporate a solenoid valve and three coloured LEDs for the indication of low, within tolerance or high results. However, all control functions and torque display are housed in an external controller unit (purchased separately). External controllers can give a much greater range of functionality than is possible on the (IC) version of the tools.



Internal Control (IC) Panel



External Control (EC) Panel

TRUKTORQUE™



The TrukTorque™ pneumatic torque multiplier features a special curved reaction arm designed to handle bolt tightening on the front and rear wheels of trucks and buses. The design easily accommodates wheel trims and deeply recessed wheel bolts.

II	TRUKTORQUE™ - STALL TOOLS
18162.B06	¾" sq. dr. 200-1000 N·m, 147 - 738 lbf·ft
18162.B08	1" sq.dr. 200-1000 N·m, 147 - 738 lbf·ft

Stall tools are supplied in a carry case.

PNEUTORQUE® PTM-52 SERIES



For light weight and high speed

- Exceptionally compact 52mm gearboxes result in light, well balanced tools
- Fast operation for rapid bolt run-down – 500 N·m version has a free speed of 224 rpm
- Internal Control (IC) versions incorporate torque transducer, torque setting and display panel and solenoid valve to shut off the air supply at the desired torque
- External Control (EC) versions incorporate torque transducer and output for an external controller. Ideal for production lines
- IC and EC tools have an accuracy of ±2%

II	PTM-52 SERIES - STALL TOOLS - BI-DIRECTIONAL
18100.B06	¾" sq. dr. 100-500 N·m, 74 - 370 lbf·ft
18101.B06	¾" sq. dr. 160-800 N·m, 118 - 590 lbf·ft

Stall tools are also available as Forward Only tools, replace B with F when ordering.

II	PTM-52 SERIES - SHUT-OFF TOOLS - BI-DIRECTIONAL - INTERNAL*
18110.B06	¾" sq. dr. 100-500 N·m, 74 - 370 lbf·ft
18111.B06	¾" sq. dr. 160-800 N·m, 118 - 590 lbf·ft

II	PTM-52 SERIES - SHUT-OFF TOOLS - BI-DIRECTIONAL - EXTERNAL (Requires Tool Controller, see page 38)*
18120.B06	¾" sq. dr. 100-500 N·m, 74 - 370 lbf·ft
18121.B06	¾" sq. dr. 160-800 N·m, 118 - 590 lbf·ft

II	PTM-52 SERIES WITH ANGLE CONTROL	
18125.B06	¾" sq. dr. 100-500 N·m, 74 - 370 lbf·ft	(IC)
18126.B06	¾" sq. dr. 160-800 N·m, 118 - 590 lbf·ft	(IC)
18136.B06	¾" sq. dr. 160-800 N·m, 118 - 590 lbf·ft	(EC)

All the above are supplied with a ¾" square drive (Part No. 18544).

II	ACCESSORIES
18545	1" square drive for above tools

*IC and EC tools are not supplied in a carry case

NOTE: Contact Norbar for more information on PTM-52 200 models

PNEUTORQUE® PTM-72 SERIES



For light weight and high speed

- Exceptionally compact 72mm gearboxes result in light, well balanced tools
- Fast operation for rapid bolt run-down – 1000 N·m version has a free speed of 122 rpm
- Internal Control (IC) versions incorporate torque transducer, torque setting and display panel and solenoid valve to shut off the air supply at the desired torque
- External Control (EC) versions incorporate torque transducer and output for an external controller. Ideal for production lines
- IC and EC tools have an accuracy of ±2%

II	PTM-72 SERIES - STALL TOOLS - BI-DIRECTIONAL
18102.B06	¾" sq. dr. 200-1000 N·m, 147 - 738 lbf·ft
18103.B08	1" sq. dr. 270-1350 N·m, 200 - 1000 lbf·ft
18104.B08	1" sq. dr. 400-2000 N·m, 295 - 1475 lbf·ft

Stall tools are also available as Forward Only tools, replace B with F when ordering.

II	PTM-72 SERIES - SHUT-OFF TOOLS - BI DIRECTIONAL - INTERNAL*
18112.B06	¾" sq. dr. 200-1000 N·m, 147 - 738 lbf·ft
18113.B08	1" sq. dr. 270-1350 N·m, 200 - 1000 lbf·ft
18114.B08	1" sq. dr 400-2000 N·m, 295 - 1475 lbf·ft

II	PTM-72 SERIES - SHUT-OFF TOOLS - BI-DIRECTIONAL - EXTERNAL (Requires tool controller, see page 38)*
18122.B06	¾" sq. dr. 200-1000 N·m, 147 - 738 lbf·ft
18123.B08	1" sq. dr. 270-1350 N·m, 200 - 1000 lbf·ft
18124.B08	1" sq.dr. 400-2000 N·m, 295 - 1475 lbf·ft

II	PTM-72 SERIES WITH ANGLE CONTROL*
18127.B06	¾" sq. dr. 200-1000 N·m, 147 - 738 lbf·ft
18128.B08	1" sq. dr. 270-1350 N·m, 200 - 1000 lbf·ft
18129.B08	1" sq. dr. 400-2000 N·m, 295 - 1475 lbf·ft
18138.B08	1" sq. dr. 270-1350 N·m, 200 - 1000 lbf·ft

*IC and EC tools are not supplied in a carry case

PNEUTORQUE® PTME-72 SERIES



Designed to meet the needs of the commercial vehicle market, the integrated reaction foot of the PTME-72 series of tools reaches recessed wheel bolts whilst the 72mm diameter gearbox handles the high frequency of use demanded by busy tyre shops.

- IC and EC tools have an accuracy of ±2%

II	PTME-72 SERIES - STALL TOOLS - BI-DIRECTIONAL
18140.B06	¾" sq. dr. 200-1000 N·m, 147 - 738 lbf·ft
18149.B08	1" sq. dr. 200-1000 N·m, 147 - 738 lbf·ft
18141.B08	1" sq. dr. 400-2000 N·m, 295 - 1475 lbf·ft

Stall tools are also available as Forward Only tools, replace B with F when ordering.

II	PTME-72 SERIES - SHUT-OFF TOOLS - BI-DIRECTIONAL - INTERNAL*
18142.B06	¾" sq. dr. 200-1000 N·m, 147 - 738 lbf·ft
18143.B08	1" sq. dr. 400-2000 N·m, 295 - 1475 lbf·ft

II	PTME-72 SERIES - SHUT-OFF TOOLS - BI-DIRECTIONAL - EXTERNAL (Requires Tool Controller, see page 38)*
18144.B06	¾" sq. dr. 200-1000 N·m, 147 - 738 lbf·ft
18145.B08	1" sq. dr. 400-2000 N·m, 295 - 1475 lbf·ft

*IC and EC tools are not supplied in a carry case



PNEUTORQUE® PTM-92 AND PTM-119 SERIES



The PTM-92 and PTM-119 tools bring the speed advantage of the twin motor handle to higher capacity PneuTorque® models. These models deliver an ideal balance between robustness, speed and weight.

- Fast - 2700 N·m version has a free speed of 46 rpm for rapid bolt run-down time
- Light weight - PTM-92-2700 weighs just 8.5kg and fitted with a light robust aluminium reaction plate as standard
- Other reaction plates are available for maximum versatility
- Quiet - less than 85 dB(A) when under load

II	PTM-92 SERIES - STALL TOOLS - BI-DIRECTIONAL
18106.B08	1" sq. dr. 540-2700 N·m, 400 - 2000 lbf·ft
18119.B08	1" sq. dr. 800-4000 N·m, 590-2950 lbf·ft
18119.B12	1½" sq. dr. 800-4000 N·m, 590-2950 lbf·ft

Also available as Forward Only tools, replace B with F when ordering. Stall tools are supplied in a carry case.

II	PTM-119 SERIES - STALL TOOLS - BI-DIRECTIONAL
18108.B12	1½" sq. dr. 900-4500 N·m, 660-3300 lbf·ft
18109.B12	1½" sq. dr. 1200-6000 N·m, 885-4500 lbf·ft

Also available as Forward Only tools, replace B with F when ordering. Stall tools are supplied in a carry case.



PTM-52 with Internal Control (IC) Panel

PNEUTORQUE® PTM DUAL TRIGGER



- A second trigger located on the back plate requires the operator to use both hands to operate the tool and so reduces the risk of the operators' hands getting trapped between the reaction bar and reaction point
- Fast operation for rapid bolt rundown
- Non impacting – low vibration levels make these tools comfortable and safe to use
- Quiet – less than 85 dB(A) when under load
- For safety, gearbox can rotate independently from the handle so that reaction forces are not transmitted back to the operator.

II	PTM DUAL TRIGGER - BI-DIRECTIONAL
18100.B06.DT	PTM-52 ¾" sq. dr. 100-500 N·m, 74-370 lbf·ft
18101.B06.DT	PTM-52 ¾" sq. dr. 160-800 N·m, 118-590 lbf·ft
18102.B06.DT	PTM-72 ¾" sq. dr. 200-1000 N·m, 147-738 lbf·ft
18103.B08.DT	PTM-72 1" sq. dr. 270-1350 N·m, 200-1000 lbf·ft
18104.B08.DT	PTM-72 1" sq. dr. 400-2000 N·m, 295-1475 lbf·ft
18106.B08.DT	PTM-92 1" sq. dr. 540-2700 N·m, 400-2000 lbf·ft
18119.B08.DT	PTM-92 1½" sq. dr. 800-4000 N·m, 590-2950 lbf·ft
18119.B12.DT	PTM-92 1½" sq. dr. 800-4000 N·m, 590-2950 lbf·ft
18108.B12.DT	PTM-119 1½" sq. dr. 900-4500 N·m, 660-3300 lbf·ft
18109.B12.DT	PTM-119 1½" sq. dr. 1200-6000 N·m, 885-4500 lbf·ft



PNEUTORQUE® PT-72 SERIES



- 72mm gearbox diameter allows excellent access
- Powerful - up to 2000 N·m output
- Switchable forward and reverse operation
- Quiet - less than 81 dB(A), and non-impacting for minimum operator fatigue
- 'Soft Start' trigger control aids socket location and allows gradual and safe reaction take-up
- For safety, gearbox can turn independently from the handle. Torque reaction is never transmitted back to the operator

11	PT-72 SERIES
18023	¾" sq. dr. 90-500 N·m, 66-370 lbf·ft
18023.AUT	¾" sq. dr. Auto 2SP 203-500 N·m, 150-370 lbf·ft
18022	¾" sq. dr. 190-1000 N·m, 140-740 lbf·ft
18022.AUT	¾" sq. dr. Auto 2SP 488-1000 N·m, 360-740 lbf·ft
18026	1" sq. dr. 190-1000 N·m, 140-740 lbf·ft
18026.AUT	1" sq. dr. Auto 2SP 488-1000 N·m, 360-740 lbf·ft
18021	1" sq. dr. 300-1500 N·m, 220-1110 lbf·ft
18021.AUT	1" sq. dr. Auto 2SP 760-1500 N·m, 560-1110 lbf·ft
18033	1" sq. dr. 400-2000 N·m, 300-1450 lbf·ft
18033.AUT	1" sq. dr. Auto 2SP 1000-2000 N·m, 750-1450 lbf·ft

PNEUTORQUE® PT-72 REMOTE CONTROL SERIES



Remote control versions have no direction control on the tool but rely on external pneumatic circuitry to provide this function. This opens up numerous application possibilities for the PneuTorque® ranging from simple stall shut-off in a hazardous working environment to sophisticated, multi-spindle torque and angle shut-off systems.

- Stall control gives repeatability of ±5% on a given joint
- Torque transducers and angle encoders available for all models (These form the basis of sophisticated control systems giving repeatability of ±2%)
- Automatic Two Speed gearbox reduces run-down times
- Each gearbox supplied with a standard reaction device or, on request, one designed specifically to suit the application

11	PT-72 REMOTE SERIES
18031	¾" sq. dr. 90-500 N·m, 66-370 lbf·ft
18031.AUT	¾" sq. dr. Auto 2SP 203-500 N·m, 150-370 lbf·ft
18030	¾" sq. dr. 190-1000 N·m, 140-740 lbf·ft
18030.AUT	¾" sq. dr. Auto 2SP 488-1000 N·m, 360-740 lbf·ft
18032	1" sq. dr. 190-1000 N·m, 140-740 lbf·ft
18032.AUT	1" sq. dr. Auto 2SP 488-1000 N·m, 360-740 lbf·ft
18029	1" sq. dr. 300-1500 N·m, 220-1110 lbf·ft
18029.AUT	1" sq. dr. Auto 2SP 760-1500 N·m, 560-1110 lbf·ft
18034	1" sq. dr. 400-2000 N·m, 300-1450 lbf·ft
18034.AUT	1" sq. dr. Auto 2SP 1000-2000 N·m, 750-1450 lbf·ft



8	LIFTING HANDLE ASSEMBLY
18344.148	To fit PT 72 Single Speed
18344.220	To fit PT 72 Auto Two Speed (and transducer tools)

PNEUTORQUE® STANDARD SERIES





Based on the original PneuTorque®, the 'Standard Series' range is a direct result of over 50 years of refinement and development necessary to keep pace with the requirements of industry today.

In use in many thousands of applications worldwide PneuTorque® Wrenches continue to represent the foundation of Norbar's powered tool range. Two speed models offer all the advantages of single speed versions but with the additional benefit of a run-down speed five times greater than the final torque speed.

- Models available for almost every bolting and torque application, up to 300,000 N·m
- Forward and reverse operation
- Quiet, non-impacting or pulsing operation - low operator fatigue
- Stall control gives repeatability of ±5% on a given joint
- Other reaction styles can be designed to suit specific applications
- Electronic torque transducers can be fitted for precise torque monitoring

II	TO 3400 N·m - SINGLE SPEED
16031	PT 1 ¾" sq. dr. 160-680 N·m, 120-500 lbf·ft
16011	PT 1 1" sq. dr. 160-680 N·m, 120-500 lbf·ft
16098	PT 1A ¾" sq. dr. 270-1200 N·m, 200-900 lbf·ft
16097	PT 1A 1" sq. dr. 270-1200 N·m, 200-900 lbf·ft
16013	PT 2 1" sq. dr. 515-1700 N·m, 380-1250 lbf·ft
16015	PT 5 1" sq. dr. 880-3400 N·m, 650-2500 lbf·ft
16017	PT 6 1½" sq. dr. 880-3400 N·m, 650-2500 lbf·ft

II	TO 3400 N·m - AUTOMATIC TWO SPEED
16031.AUT	PT 1 ¾" sq. dr. Auto 2SP 160-680 N·m, 120-500 lbf·ft
16011.AUT	PT 1 1" sq. dr. Auto 2SP 160-680 N·m, 120-500 lbf·ft
16098.AUT	PT 1A ¾" sq. dr. Auto 2SP 400-1200 N·m, 295-900 lbf·ft
16097.AUT	PT 1A 1" sq. dr. Auto 2SP 400-1200 N·m, 295-900 lbf·ft
16013.AUT	PT 2 1" sq. dr. Auto 2SP 700-1700 N·m, 515-1250 lbf·ft
16015.AUT	PT 5 1" sq. dr. Auto 2SP 880-3400 N·m, 650-2500 lbf·ft
16017.AUT	PT 6 1½" sq. dr. Auto 2SP 880-3400 N·m, 650-2500 lbf·ft

II	TO 3400 N·m - MANUAL TWO SPEED
16031.MTS	PT 1 ¾" sq. dr. MTS 160-680 N·m, 120-500 lbf·ft
16011.MTS	PT 1 1" sq. dr. MTS 160-680 N·m, 120-500 lbf·ft
16098.MTS	PT 1A ¾" sq. dr. MTS 270-1200 N·m, 200-900 lbf·ft
16097.MTS	PT 1A 1" sq. dr. MTS 270-1200 N·m, 200-900 lbf·ft
16013.MTS	PT 2 1" sq. dr. MTS 515-1700 N·m, 380-1250 lbf·ft
16015.MTS	PT 5 1" sq. dr. MTS 880-3400 N·m, 650-2500 lbf·ft
16017.MTS	PT 6 1½" sq. dr. MTS 880-3400 N·m, 650-2500 lbf·ft

II	TO 100000 N·m - SINGLE SPEED
16066	PT 7 1½" sq. dr. 1762-6000 N·m, 1300-4500 lbf·ft
16072	PT 9 1½" sq. dr. 2710-9500 N·m, 2000-7000 lbf·ft
16046	PT 11 2½" sq. dr. 4400-20000 N·m, 3250-14700 lbf·ft
18086	PT 12 2½" sq. dr. 9500-34000 N·m, 7000-25000 lbf·ft
16052	PT 13 2½" sq. dr. 13550-47000 N·m, 10000-35000 lbf·ft
16045	PT 14 3½" sq. dr. 22375-100000 N·m, 16500-73500 lbf·ft

PNEUTORQUE® STANDARD SERIES

	TO 100000 N·m - AUTOMATIC TWO SPEED
16066.AUT	PT 7 1½" sq. dr. Auto 2SP 2200-6000 N·m, 1620-4400 lbf·ft
16072.AUT	PT 9 1½" sq. dr. Auto 2SP 3100-9500 N·m, 2300-7000 lbf·ft

	TO 300000 N·m - MANUAL TWO SPEED
16066.MTS	PT 7 1½" sq. dr. 1762-6000 N·m, 1300-4500 lbf·ft
16072.MTS	PT 9 1½" sq. dr. 2710-9500 N·m, 2000-7000 lbf·ft
16046.MTS	PT 11 2½" sq. dr. 4400-20000 N·m, 3250-14700 lbf·ft
18086.MTS	PT 12 2½" sq. dr. 9500-34000 N·m, 7000-25000 lbf·ft
16052.MTS	PT 13 2½" sq. dr. 13550-47000 N·m, 10000-35000 lbf·ft
16045.MTS	PT 14 3½" sq. dr. 22375-100000 N·m, 16500-73500 lbf·ft
18089.MTS	PT 15 MTS 40000-150000 N·m, 29500-111000 lbf·ft
18090.MTS	PT 16 MTS 55000-200000 N·m, 40500-147500 lbf·ft
18088.MTS	PT 17 MTS 70000-250000 N·m, 51500-184500 lbf·ft
16054.MTS	PT 18 MTS 85000-300000 N·m, 62500- 221500 lbf·ft
16490	Lifting Bracket for Standard Series (up to PT7)

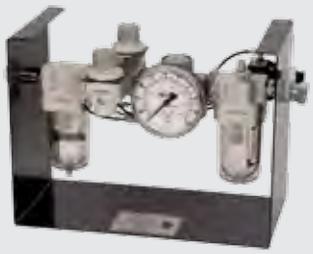


MTS = Manual Two Speed. Auto 2SP = Automatic Two Speed.
Angle Encoders are available for standard series PTs please contact Norbar for further details.
NB: PneuTorque® PT 11 - PT 18 are supplied with a LUBRO CONTROL UNIT as standard equipment. PneuTorques PT 12, 13 and 14 are also supplied with a Weld Prepared Reaction Ring as standard. PTs 13 and 14 are also supplied with a Transporting Trolley. PTs 15 - 18 do not include output drive or reaction. These components will be engineered uniquely for each application. Remote PT Part Numbers are designated with an .X
e.g. PT 1 remote is 16031.X
e.g. PT 1 remote auto is 16031.XAUT

LUBRO CONTROL UNITS



16074



16075



60290

Norbar's standard filter, regulator, lubricator unit 16074 features a large, 100mm diameter gauge for easy and accurate setting of air pressure. It is supplied with 3 metres of robust, steel braded air hose with fittings to connect to PneuTorque® wrenches.

Twin Regulator Lubro Control Unit, part number 16075

The 'Twin Lubro' has the same features as Norbar's standard filter, regulator, lubricator unit but has the benefit of two regulators and a switch that allows quick selection between two air pressure settings. A typical application for this would be a PneuTorque® user wishing to quickly select between two applications requiring different torque settings. For example, this might be controlled torque in the forward direction and maximum torque allowed by the tool in the reverse direction.

Multi Channel Lubro, part number 60290

The Multi Channel Lubro is for users who wish to run their pneumatic tools at multiple air pressure settings, without having to make time consuming adjustments to an air regulator. The Multi Channel Lubro can be programmed for up to 15 air pressure settings and these settings can be locked by the removal of the programming key. A typical application would be a tyre shop servicing various vehicles, each vehicle having a different wheel nut torque. Settings can be recorded on a write-on label situated on the front of the Lubro Control. The Multi Channel Lubro is battery powered with a battery life of approximately 16 hours under normal use.

	LUBRO CONTROL UNITS
16074	Lubro Control Unit F/W 3m hose
16075	Twin Lubro Control Unit
60290	Multi Channel Lubro

See Page 66 for Lubro Control Unit spares.

TOOL CONTROLLERS



The Tool Controller shut-off system is supplied in a wall box for 'External Control' versions of the Norbar PTM series of tools. This can give a much greater range of functionality than is possible on the 'Internal Control' version of the tool.



Example of T-Box XL based Tool Controller
Part No. 60302

II	TOOL CONTROLLER (TTT based)
60244	Shut-off system in wall box
60254	Shut-off system in wall box with printer

Tool Controllers are supplied without leads

61127.600	Lead for PTM Series Tool
61126.600	Transducer Lead for PT Series Tool
61128.600	Solenoid Lead for PT Series Tool (for single valve)

Both 61126.600 and 61128.600 are required to control a PT Series tool with a tool controller.

II	TOOL CONTROLLER (T-BOX XL based)
60302	Shut-off system in wall box for PTM tools

Tool Controllers are supplied without leads

61135.600	Transducer Lead for PTM-EC and Angle Series Tools
61135.1000	Transducer Lead for PTM-EC and Angle Series Tools

NOSE EXTENSIONS

Special nose extension reaction devices are available for use in situations where the tool access is restricted.
A typical application is the rear wheel nuts on heavy vehicles.





II	NOSE EXTENSIONS FOR PTM-52 SERIES
18601.006	6" long, F/M ¾" sq. dr.
18601.009	9" long, F/M ¾" sq. dr.
18601.012	12" long, F/M ¾" sq. dr.
18594.006	6" long F/M ¾" sq. dr. for pre May 2009 PTM-52
18594.009	9" long F/M ¾" sq. dr. for pre May 2009 PTM-52
18594.012	12" long F/M ¾" sq. dr. for pre May 2009 PTM-52

II	NOSE EXTENSIONS FOR PTM-72 SERIES
19007.006	6" long, SPM/M 1" sq. dr.
19007.009	9" long, SPM/M 1" sq. dr.
19007.012	12" long, SPM/M 1" sq. dr.
18755.006	6" long SPM/M 1" sq. dr. for pre May 2009 PTM-72
18755.009	9" long SPM/M 1" sq. dr. for pre May 2009 PTM-72
18755.012	12" long SPM/M 1" sq. dr. for pre May 2009 PTM-72

SPM/M = Spline Male/Male Square

II	SPLINED NOSE EXTENSIONS FOR PTM-52 SERIES
19045.006	6" long
19045.009	9" long
19045.012	12" long

II	SPLINED NOSE EXTENSIONS FOR PTM-72 SERIES ¾" DRIVE
19046.006	6" long, ¾" sq.dr.
19046.009	9" long, ¾" sq.dr.
19046.012	12" long, ¾" sq.dr.

II	SPLINED NOSE EXTENSIONS FOR PTM-72/92 SERIES 1" DRIVE
19285.006	PTM-72 6" long, 1" sq.dr.
19285.009	PTM-72 9" long, 1" sq.dr.
19285.012	PTM-72 12" long, 1" sq.dr.
19047.006	PTM-92 6" long, 1" sq.dr.
19047.009	PTM-92 9" long, 1" sq.dr.
19047.012	PTM-92 12" long, 1" sq.dr.



Example of Remote 108 Operating Valve Assembly fitted to a 108 Remote Motor Part No. 60301

This assembly includes two 3 way shut-off valves Part No. 28930

8	3 WAY SHUT-OFF VALVE
28930	3 Way Shut-off Valve 7 BAR Maximum Air Pressure
28938	3 Way Shut-off Valve 10 BAR Maximum Air Pressure

The models above are a sample of the Controllers that Norbar produce.

Please contact Norbar for your special requirements.

8	TWIN SOLENOID VALVE ASSEMBLY
60301	Twin Solenoid Valve Assembly for 108 Remote Tools
60305	Twin Solenoid Valve Assembly for 72 Remote Tools

4	TRANSDUCER LEADS
60216.200	PRO-LOG, TST, TTT & T-Box XL™ to 10 Way Transducer for use with Norbar Rotary Transducers
60217.200	PRO-LOG, TST, TTT & T-Box XL™ to 6 Way Transducer for use with Norbar Static & Annular Transducers
60223.200	PRO-LOG, TST, TTT & T-Box XL™ to no connector
60224.200	10 Way Transducer to no connector
60225.200	6 Way Transducer to no connector
51067.225	ETS to Transducer (Pre 1994) + 5 way (60055)
60152.225	ETS to Transducer (Post 1994) + 5 way (60163)
60308.400	PRO-LOG, TST, TTT & T-Box XL™ to Torque & Angle Annular Transducer
60308.600	PRO-LOG, TST, TTT & T-Box XL™ to Torque & Angle Annular Transducer
60308.1000	PRO-LOG, TST, TTT & T-Box XL™ to Torque & Angle Annular Transducer

Note: The system should be calibrated with the increased length lead, as calibration may be effected.

Note: The maximum permissible cable length is 15m for TST or TTT, 7m for T-Box XL™. Contact Norbar for further details.





11	NOSE EXTENSIONS FOR TRUCK AND BUS WHEELS (Fits PTM-72)
19087.009	1000 N·m 9" long, ¾" sq. dr
19087.012	1000 N·m 12" long, ¾" sq. dr
19089.009	1000 N·m 9" long, 1" sq. dr
19089.012	1000 N·m 12" long, 1" sq. dr



11	NOSE EXTENSIONS FOR 72 SERIES (For PTM Series see left)
18349.006	6" long, SPM/SPF
18349.009	9" long, SPM/SPF
18349.012	12" long, SPM/SPF
18349.015	15" long, SPM/SPF
18349.018	18" long, SPM/SPF
18330.50	Telescopic Nose Assembly

The nose extensions shown above can also be used with HT72s. Note: Square drive fitted from existing tool. SPM = Spline Male. SPF = Spline Female.

11	NOSE EXTENSIONS FOR STANDARD SERIES GEARBOX
16480.006	PT1 & 2, 6" long, F/M ¾" sq. dr.
16480.009	PT1 & 2, 9" long, F/M ¾" sq. dr.
16480.012	PT1 & 2, 12" long, F/M ¾" sq. dr.
16542.006	PT1 & 2, 6" long, F/M 1" sq. dr.
16542.009	PT1 & 2, 9" long, F/M 1" sq. dr.
16542.012	PT1 & 2, 12" long, F/M 1" sq. dr.
16694.006	PT5 6" long, M/M 1" sq. dr.
16694.009	PT5 9" long, M/M 1" sq. dr.
16694.012	PT5 12" long, M/M 1" sq. dr.

The Nose Extensions shown above can also be used with HT2s and 5s. If required other sizes of Nose Extension are available.

F/M = Female Input Square/Male Output Square

M/M = Male Input Square/Male Output Square

OPTIONAL REACTION PLATES

A variety of steel reaction plates and adaptors, together with ancillary feet, blades and heads to aid their use are available for PneuTorque®, EvoTorque®, EvoTorque® 2 and HandTorque® wrenches.

II	FOR HT/PTM-52 SERIES
18590	Double Sided Reaction Plate
18576	Blank Reaction Plate
18558	Reaction Adaptor
19186	Spline Adaptor
62236	Reaction Plate Spline Adaptor



Reaction Adaptors (18290 & 18558)

II	FOR HT/ET/PT/PTM-72 SERIES
18293	Double Sided Reaction Plate
18292	Straight Reaction Plate
18290	Reaction Adaptor
19186	Spline Adaptor



Reaction Adaptor (18290)
Double Sided Reaction Plate (18293)
Straight Reaction Plate (18292)

II	FOR ET/PTM-92 SERIES
18979	Single Sided Straight Reaction Plate
18980	Double Sided Straight Reaction Plate

II	FOR ET/PTM-119 SERIES
16687	Single Sided Straight Reaction Plate
18981	Double Sided Straight Reaction Plate



Straight Reaction with Peg (18298)
Short Reaction Foot (18241)
Straight Reaction (18291)

II	ANCILLARY ITEMS FOR USE WITH 18290 OR 18558
18298	Straight Reaction with Peg
18291	Straight Reaction
18241	Short Reaction Foot
18358	Sliding Reaction Blade (to be used with 18291)
18359	Reaction Head (to be used with 18291)

II	FOR HT30/PT2700
16686	Single Sided Straight Reaction Plate



Flat Reaction Plate (18436)

II	FOR HT60/PT4500/PT5500
16687	Single Sided Straight Reaction Plate
18436	Flat Reaction Plate



Reaction Weld Ring

II	REACTION WELD RINGS
18694	For HT/PTM-52
18695	For HT/ET/PTM-72
18696	For HT/ET/PTM-92
18697	For HT/ET/PTM-119



Light Weight Reaction (19214)

II	LIGHT WEIGHT REACTIONS
19214	API Class 4 Light Weight Reaction

OPTIONAL REACTION PLATES

A variety of reaction plates, manufactured in Steel or Aluminium, for EvoTorque®, EvoTorque® 2 and PneuTorque® PTM series tools.

11	SPLINED REACTION FOR ET/HT/PTM-72 SERIES
For use with ET/HT/PTM 1000/1350/2000	
19289	
18494	



Right:
Aluminium Splined Reaction
Part No. 18494

Left:
Steel Splined Reaction
Part No. 19289



11	SPLINED REACTION FOR ET/HT/PTM-92 SERIES
For use with ET/HT/PTM 2700/4000	
19291	
18936	



Right:
Aluminium Splined Reaction
Part No. 18936

Left:
Steel Splined Reaction
Part No. 19291



11	SPLINED REACTION FOR ET/HT/PTM-119 SERIES
For use with ET/HT/PTM 6000	
19293	
18961	



Right:
Aluminium Splined Reaction
Part No. 18961

Left:
Steel Splined Reaction
Part No. 19293



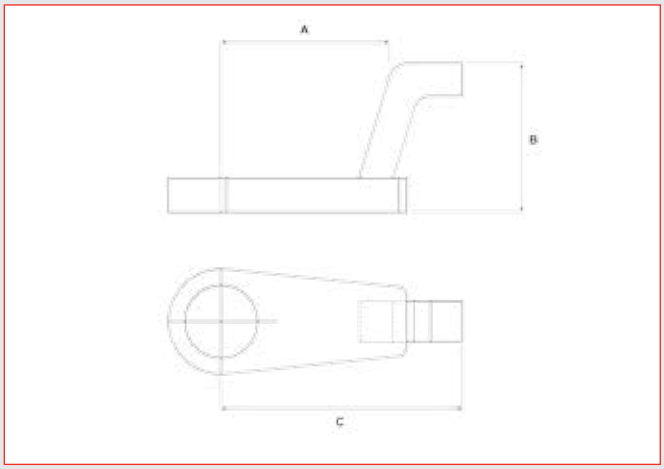
	A	B	C
19289	114 mm	100 mm	167 mm
18494	91 mm	99 mm	166 mm
19291	115 mm	105 mm	175 mm
18936	115 mm	124 mm	205 mm
19293	150 mm	128 mm	210 mm
18961	132 mm	157 mm	199 mm

Norbar offer a range of specific reactions for the Wind Industry.

11	SPECIAL SPLINED REACTION FOR ET/HT/PTM-119 SERIES
For use with ET/HT/PTM 6000	
78027	
78028	



Typical Wind Tower mid-section reaction
Part No. 78027



Typical Wind Tower mid-section reaction
Part No. 78028



	A	B	C
78027	150 mm	130 mm	250 mm
78028	57 mm	115 mm	145 mm

TORQUE MEASUREMENT

Norbar started manufacturing electronic torque measuring instruments in the early 1970s and now offers a comprehensive range, from the easy to use, cost effective TruCheck™ through to the sophisticated T-Box XL™ and TDMS software, which provides the complete solution for torque tool calibration, data logging and data management. Norbar torque measuring instruments are renowned for high accuracy and superb reliability. Indeed, many of those early instruments are still in regular use today. For our interchangeable transducer instruments, we remain one of the few manufacturers in the world that issue a UKAS accredited calibration certificate both for the instrument and for the torque transducer. In so doing, customers can swap combinations of instrument and transducer while retaining complete traceability.

Norbar's torque transducers have established an excellent reputation based on exceptional quality and accuracy. A very wide torque range is covered, 0.04 N·m to 100,000 N·m and three basic transducer configurations are offered; Static, Impulse Rotary and Annular.

All transducers up to 100,000 N·m are supplied as standard with a UKAS accredited calibration certificate from Norbar's in-house laboratory.

For customers who wish to take advantage of Norbar's transducers but have an existing, non Norbar display instrument, transducers can be provided with a mV/V calibration.

Norbar's instruments and transducers are complemented by a wide range of ancillary products. Within this group are the products that would be required to set up a torque calibration laboratory, for example, torque wrench loaders meeting ISO requirements and precision beam and weight systems for calibration of torque transducers.

Trucheck™ 0.1 N·m - 25 N·m	42
Trucheck™ 10 N·m - 2000 N·m	43
Pro-Test	43
TST	44
TTT	44
T-Box XL™	45
TDMS Software	45
Spares for Instrumentation Products	45
Part Number Suffix System	45
Transducers FMT	46
Static Transducers	47
Rotary Transducers	48
Annular Transducers	49
Transducer Leads	50
Loaders and Attachments	51
Test Fixtures	52

TRUCHECK™ 0.1 N·m - 25 N·m



TruCheck™ Plus 25

For simple, cost effective testing of torque screwdrivers and torque wrenches

- Allows torque tool performance to be monitored and tools kept in peak condition
- Two versions, TruCheck™ and TruCheck™ Plus
- Basic version has no settable options. Ideal for non-expert users
- TruCheck™ Plus allows selection of torque units and modes for 'click' and dial type wrenches
- 'Plus' version allows operator to set a target value and tolerance
- Supplied with traceable calibration certificate



TruCheck™ Plus 3 & 10

4	TRUCHECK™
43253*	TruCheck™ 0.1 - 3.0 N·m
43250*	TruCheck™ Plus 0.1 - 3.0 N·m
43254*	TruCheck™ 1 - 10 N·m
43251*	TruCheck™ Plus 1 - 10 N·m
43255+	TruCheck™ 1 - 25 N·m
43252+	TruCheck™ Plus 1 - 25 N·m

*43250, 43251, 43253 and 43254 supplied with ¼" male hexagon plus ¼" female hex to female sq. adaptor

+43252 and 43255 supplied with ¼" female hex to ¼" female sq. adaptor and ¼" female hex to ⅜" female sq. Adaptor 43252 and 43255

NOTE: UKAS accredited calibration is from 2% to 100% of full scale for 43253 & 43250 and from 10% to 100% of full scale for 43254 & 43257 and from 4% to 100% of full scale for 43255 & 43252.

TRUCHECK™ 10 N·m - 2000 N·m



One of the concerns in putting a torque tester into an environment where people are not calibration specialists is that incorrect selections will be made with the potential of incorrect tool setting and consequently joint failure.
The 'TruCheck™' torque wrench testers aim to cut the cost of purchasing a torque wrench calibration system, and remove the fears over the complexity of using such equipment.
There are two versions available, the 'TruCheck™' being the most basic version, and the 'TruCheck™ Plus' having greater functionality, to offer more flexibility.



4	TRUCHECK™
43221*	TruCheck™ 10 - 350 N·m
43226*	TruCheck™ 10 - 250 lbf·ft
43222*	TruCheck™ Plus 10 - 350 N·m
43230+	TruCheck™ 100 - 1000 N·m
43237+	TruCheck™ 75 - 750 lbf·ft
43231+	TruCheck™ Plus 100 - 1000 N·m
43244@	TruCheck™ 200 - 2000 N·m
43245@	TruCheck™ Plus 200 - 2000 N·m
TCACC.CW	UKAS accredited calibration - clockwise
TCACC. CW+CCW	UKAS accredited calibration - clockwise and counter clockwise

* 43221, 43222 and 43226 supplied with ½" female square drive
+ 43230, 43231 and 43237 supplied with 27mm male hexagon plus ¾" sq. dr. socket
@ 43244 and 43245 supplied with 27mm male hexagon plus 1" sq.dr socket

NOTE: UKAS accredited calibration is from 5% to 100% of full scale for 43221, 43226, 43222 and 10% to 100% for 43230, 43231, 43237, 43244 & 43245.

PRO-TEST



The Professional Torque Tester - Series 2, Pro-Test, is an accurate, highly specified and easy to operate instrument for testing and calibrating all types of torque wrench.

- 'Pro-Test' is priced to make in-house testing a viable proposition even for the smaller industrial and automotive torque wrench user.
- Guaranteed classification to BS7882:2008 , Class 1 or better over the primary calibration range (20% to 100% of full scale), Class 2 or better over the secondary calibration range (lowest calibrated value to 20% of full scale). Class 1 equates to ±0.5% of reading.
- Three essential operating modes allow the Pro-Test to be used with all torque wrench types 'Track' displays the live value, 'Peak Memory' records the highest value and 'First Peak Memory' records the first peak of torque (for click type torque wrenches). Both memory modes can be used with manual or automatic reset.
- Large back lit display is easily visible from a distance and in poor light.
- Display and Transducer are hard-wired together with a 600 mm cable.
- All common units of torque measurement are included.
- Pictorial mode selection incorporated for ease of use.
- User can select the language they wish to work in (most European languages are included).
- Transducer can be mounted for torque wrench operation in the horizontal or vertical plane.
- RS-232-C is included for the output of reading to a printer, PC, data capture unit, SPC software etc.
- Optional mounting plate gives greater flexibility of mounting options.
- All user settable parameters are menu selectable from the front panel.
- Supplied in a robust carry case with a data transfer lead to connect to a PC or printer.
- As standard, all transducers are calibrated in a clockwise direction. For additional anti clockwise direction order Part No. PROTEST.CCW.

4	PRO-TEST (Professional Torque Tester Series 2)
	Clockwise Calibration only
43218	Pro-Test 60, 1.2 - 60 N·m
43219	Pro-Test 400, 8 - 400 N·m
43220	Pro-Test 1500, 30 - 1500 N·m

4	ANCILLARY PRODUCTS FOR PRO-TEST
62198.BLK9005	Mounting Bracket
60253	12v DC Power Supply for Series 2
29190	1" x 36mm socket
PROTEST.CCW	Counter Clockwise Calibration when ordered with new unit

TST



The TST combines simplicity with up to date technology to provide a high quality instrument for the testing and calibration of low capacity torque tools.

Featuring an internal transducer complete with Rundown Fixture, the TST is available in 3 torque ranges, 0.04 to 2 N·m, 0.5 to 10 N·m and 1.25 to 25 N·m. Class 1 system accuracy over its Primary range (±0.5% of reading from 20% to 100% of full scale).
What makes the TST genuinely versatile is the interface for an external transducer. This interface, accessed by a 2 way switch on the TST, allows the connection of any transducer from Norbar's "SMART" range and most mV/V calibrated transducers from Norbar or other manufacturers.

- Pictorial display panel for easy mode selection.
- Limit detection with low, pass and fail indication. Up to 8 target values can be set.
- Digital limit state output for control of external tools.
- Operation from fast charge internal battery pack (maximum time of 3 hours 20 minutes for full charge) or a.c. supply (90 to 264 Volts).
- RS-232-C serial data interface for connection to a printer or PC. Continuous RS 232 output when used in track mode (up to 11 readings per sec).
- Pulse count feature in Impulse mode and Clutch Tool mode.
- 'SMART' intelligence for transducer recognition.
- Memory for calibration details of 20 non-'SMART' mV/V calibrated transducers.
- Analogue output allows the instrument to be used as part of a process control system for performance analysis.
- User selectable frequency response for each mode of operation.
- All user selectable features have password protection. The instrument can be issued to users with only the required modes of operation and units of measure enabled. This feature can virtually eliminate operator induced errors.

4	TST (Torque Screwdriver Tester Series 2)
43212	TST 2, 0.04 - 2 N·m
43213	TST 10, 0.5 - 10 N·m
43214	TST 25, 1.25 - 25 N·m
TST.CCW	Counter clockwise calibration when ordered with new unit

TST is supplied complete with a Rundown Fixture for joint simulation.
Additional rundowns are available see page 52.

TTT



The TTT shares all of the extensive features of the TST except that it has no internal transducer. Instead, the TTT offers not one but three external transducer interfaces allowing any three transducers to be simultaneously connected. Selection between the transducers is made by a rotary switch at the back of the instrument case.

Any transducer from Norbar's 'SMART' range and most mV/V calibrated transducers from Norbar or other manufacturers can be connected to the TTT. The 'SMART' feature means that once a transducer has been connected, the instrument will automatically recognise calibration details such as mV/V output, serial number and capacity.

- Pictorial display panel for easy mode selection.
- Limit detection with low, pass and fail indication. Up to 12 target values can be set.
- Digital limit state output for control of external tools.
- Operation from fast charge internal battery pack (maximum time of 3 hours 20 minutes for full charge) or a.c. supply (90 to 264 Volts).
- RS-232-C serial data interface for connection to a printer or PC. Continuous RS 232 output when used in track mode (up to 11 readings per sec).
- Pulse count feature in Impulse mode and Clutch Tool mode.
- 'SMART' intelligence for transducer recognition, now displays transducer capacity, units and Serial No.
- Memory for calibration details of 20 non-'SMART' mV/V calibrated transducers.
- Analogue output allows the instrument to be used as part of a process control system for performance analysis.
- User selectable frequency response for each mode of operation.
- All user selectable features have password protection. The instrument can be issued to users with only the required modes of operation and units of measure enabled. This feature can virtually eliminate operator induced errors.
- Peak memory modes can now be configured to have auto reset (previously only manual reset was possible).
- Series 3 users can set up their own measurement units, making it possible to interface with non torque transducers, for example load or pressure.

4	TTT (TORQUE TOOL TESTER SERIES 3)
43228	TTT Instrument
TTT.CCW	Counter clockwise calibration when ordered with new unit

T-BOX XL™



The T-Box XL™ together with Norbar's Torque Data Management System (TDMS) software provides the complete solution for torque tool calibration, data logging and data management and archiving on your PC.

- Can be used as a hand held portable device – using the provided neck strap – or bench mounted.
- Features a 7" (178mm) colour touch screen LCD display with on screen graphic icons for simple and easy tool selection.
- Can connect up to 4 Smart Transducers including transducers with angle capabilities for instant connectivity. Alternatively, non Norbar transducers with a mV/V output can be programmed into the T-Box XL memory.
- 2 USB ports, one RS232 serial port and an ancillary connection (USB cable supplied as standard).
- Supplied with Norbar's Torque Data Management System software (TDMS) for complete tool data management and archiving on your PC.
- T-Box XL contains a large capacity memory that will enable a user to collect data and store in excess of 100,000 individual test results directly to the instrument and then synchronise to the TDMS software.
- Includes 8 modes for torque tool measurement: Track, Click, Dial & Electronic, Stall, Screwdriver, Hydraulic, Graph and Pulse.
- Pre-loaded with Tool Templates for the entire Norbar product range of Torque Wrenches, PneuTorques and EvoTorques, enabling the user to simply assign individual tools to perform calibrations to the relevant ISO standard.

4	T-BOX XL™
43258	T-Box XL™ Instrument with TDMS Software



TDMS SOFTWARE



4	TDMS SOFTWARE
61132	TDMS Software (supplied on USB Flash Drive)

Supplied as standard with T-Box XL™.

SPARES FOR INSTRUMENTATION PRODUCTS

4	SPARES FOR INSTRUMENTATION PRODUCTS
38876	Rechargeable Battery Pack for Pro-Log, TST & TTT
39406	Battery Pack for T-Box and T-Box XL™
29610	¼" Female – ½" Male Sleeve Adaptor
29611	½" Female – ¾" Male Sleeve Adaptor
29612	½" Female – 1" Male Sleeve Adaptor
29613	¾" Female – 1" Male Sleeve Adaptor
29614	⅜" Female – ½" Male Sleeve Adaptor

4	SERIAL DATA LEAD KIT
60248	Serial Data Lead Kit

Note: Serial Data Lead Kit is not suitable for use with HE Instrument and TruCheck™

60259	USB to Serial Data Lead (Does not work with USM)

This kit enables Norbar "CE Marked" instruments (Post January 1996 ETS, TWA and DTS plus all Pro-Test, TST and TTT) to connect to most PCs.

PART NUMBER SUFFIX SYSTEM

Transducers can be ordered for use with Norbar's current range of instruments (TST, TTT, TTL-HE and T-Box XL™), and as Industry Standard (mV/V calibrated) for certain display instruments from other manufacturers.
A part number suffix system is used to identify the type of calibration required. For example, a 1000 N·m Static Transducer for use with a TTT instrument would become part number 50772.LOG.

SUFFIX	USAGE	CERTIFIED IN
.LOG	TST, TTT, TTL-HE & T-Box XL™	Torque Units
.IND	Instruments of non Norbar manufacture (check with Norbar for suitability) and TST, TTT, TTL-HE & T-Box XL™	mV/V

Where the transducer suffix .LOG is used, the transducer is calibrated with an instrument, as a system, a calibration certificate is provided in torque units. A full scale mV/V figure is also supplied.

TRANSDUCERS FMT

Flange Mounted Transducers incorporate mounting points for securely fixing the transducer to the working surface. The transducer lead is also included and is fitted with a high quality Lemo® connector, suitable for attachment to TST, TTT and T-Box XL™ instruments.

All are 'SMART' which means they have a built in memory circuit containing essential information about the transducer, that Norbar's instruments will immediately recognise.



4	FMT (Flange Mounted Transducers)
50671.LOG*	0.04-2 N·m ¼" sq. dr. with Joint Simulator
50671.IND*	0.04-2 N·m ¼" sq. dr. with Joint Simulator
50672.LOG	0.5-10 N·m ¼" sq. dr. with Joint Simulator
50672.IND	0.5-10 N·m ¼" sq. dr. with Joint Simulator
50673.LOG	1.25-25 N·m ¼" + ⅜" sq. dr. with Joint Simulator
50673.IND	1.25-25 N·m ¼" + ⅜" sq. dr. with Joint Simulator
50677.LOG*	0.4-20 lbf·in ¼" sq. dr. with Joint Simulator
50677.IND*	0.4-20 lbf·in ¼" sq. dr. with Joint Simulator
50678.LOG	5-100 lbf·in ¼" sq. dr. with Joint Simulator
50678.IND	5-100 lbf·in ¼" sq. dr. with Joint Simulator
50679.LOG	12.5-250 lbf·in ¼" + ⅜" sq. dr. with Joint Simulator
50679.IND	12.5-250 lbf·in ¼" + ⅜" sq. dr. with Joint Simulator

* If using this transducer with a Series 1 TST or TTT (Part No. s 43198 - 43201) or a Pro-Log Display instrument, please contact Norbar.



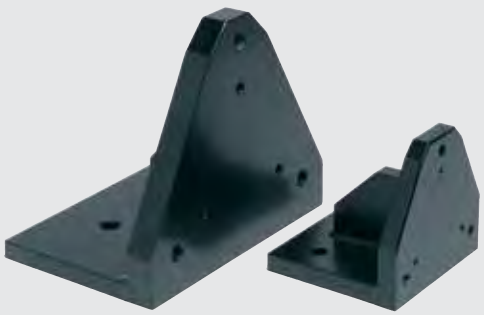
4	FMT (Flange Mounted Transducers)
50674.LOG	7.5-150 N·m ½"+ ⅜"sq. dr. with Joint Simulator
50674.IND	7.5-150 N·m ½"+ ⅜"sq. dr. with Joint Simulator
50680.LOG	5-100 lbf·ft ½"+ ⅜"sq. dr. with Joint Simulator
50680.IND	5-100 lbf·ft ½"+ ⅜"sq. dr. with Joint Simulator
50675.LOG	20-400 N·m ½"+ ¾" sq. dr.
50675.IND	20-400 N·m ½"+ ¾" sq. dr.
50681.LOG	12.5-250 lbf·ft ½"+ ¾" sq. dr.
50681.IND	12.5-250 lbf·ft ½"+ ¾" sq. dr.



4	FMT (Flange Mounted Transducers)
50676.LOG	30-1500 N·m ½", ¾" + 1" sq. dr.
50676.IND	30-1500 N·m ½", ¾" + 1" sq. dr.
50682.LOG	20-1000 lbf·ft ½", ¾" + 1" sq. dr.
50682.IND	20-1000 lbf·ft ½", ¾" + 1" sq. dr.
TD1. CCW	Counter clockwise calibration for FMT & STB when ordered with new unit

Includes integral transducer lead with connector to suit TST, TTT and T-Box XL™

4	FMT (Ancillary Section)
50539	2 N·m Joint Simulator (also fits TST)
50540	10 N·m Joint Simulator (also fits TST)
50541	25 N·m Joint Simulator (also fits TST)
50692	150 N·m Joint Simulator
50819	400 N·m Joint Simulator
52236	¼" Hexagon - ¼" Square Drive Adaptor
52237	¼" Hexagon - ⅜" Square Drive Adaptor
52251	⅜" Female Square - 22mm Bi Square Adaptor
52246	½" Female Square - 22mm Bi Square Adaptor
52245	¾" Female Square - 22mm Bi Square Adaptor
52254	½" Female Square - 35mm Bi Square Adaptor
52241	¾" Female Square - 35mm Bi Square Adaptor
52242	1" Female Square - 35mm Bi Square Adaptor



4	
62221.BLK9005	FMT Mounting Bracket 2 to 400 N·m
62220.BLK9005	FMT Mounting Bracket 150 to 1500 N·m

STATIC TRANSDUCERS

The accuracy and quality of the Norbar Static Torque Transducers has made them the first choice of many calibration laboratories throughout the world. Up to 5000 N·m (5000 lbf·ft) classified to BS7882:2008, typically better than Class 1 for the primary classification range (±0.5% of reading from 20% to 100% of full scale).

- Robust, heat treated, alloy steel torsion shaft design.
- Designed to ignore non torsional forces.
- Operates in clockwise and anti-clockwise directions.
- Calibration up to 100,000 N·m with a UKAS accredited Certificate.
- Calibrated in clockwise direction as standard. Anti-clockwise provided on request.
- 'SMART' transducers have a built in memory circuit which contains essential information about the transducer. This information can be read by Norbar's TST, TTT, TTL-HE & T-Box XL™ instruments meaning that when the transducer is connected, it is immediately recognised and ready for use.
- 'SMART' transducers can also be used with many other instruments. However, these will operate as normal ratio calibrated (mV/V) transducers - the 'SMART' data will not be read.





4	STATIC TRANSDUCERS	
50587.xxx*	0.1-1 N·m	¼" M x ¼" F
50588.xxx	0.25-2.5 N·m	¼" M x ¼" F
50589.xxx	0.5-5 N·m	¼" M x ¼" F
50590.xxx	1-10 N·m	¼" M x ¼" F
50591.xxx	2.5-25 N·m	⅜" M x ⅜" F
50592.xxx	5-50 N·m	⅜" M x ⅜" F
50593.xxx	10-100 N·m	½" M x ½" F
50594.xxx	25-250 N·m	½" M x ½" F
50701.xxx	25-250 N·m	¾" M x ¾" F
50596.xxx	50-500 N·m	¾" M x ¾" F
50772.xxx	100-1000 N·m	1" M x 1" F
50766.xxx	150-1500 N·m	1" M x 1" F
50611.xxx	0.1-1 lbf·ft	¼" M x ¼" F
50615.xxx	0.5-5 lbf·ft	¼" M x ¼" F
50618.xxx	1-10 lbf·ft	¼" M x ¼" F
50620.xxx	2.5-25 lbf·ft	⅜" M x ⅜" F
50622.xxx	5-50 lbf·ft	⅜" M x ⅜" F
50624.xxx	10-100 lbf·ft	½" M x ½" F
50625.xxx	25-250 lbf·ft	½" M x ½" F
50702.xxx	25-250 lbf·ft	¾" M x ¾" F
50627.xxx	50-500 lbf·ft	¾" M x ¾" F
50773.xxx	100-1000 lbf·ft	1" M x 1" F
50610.xxx*	1-10 lbf·in	¼" M x ¼" F
50612.xxx	2.5-25 lbf·in	¼" M x ¼" F
50614.xxx	5-50 lbf·in	¼" M x ¼" F
50617.xxx	10-100 lbf·in	¼" M x ¼" F
50619.xxx	25-250 lbf·in	⅜" M x ⅜" F
50621.xxx	50-500 lbf·in	⅜" M x ⅜" F
50623.xxx	100-1000 lbf·in	½" M x ½" F
50609.xxx*	10-100 ozf·in	¼" M x ¼" F

TD2.CCW	Alternative calibration direction for transducers up to 1500 N·m / 1000 lbf·ft when ordered with new unit

M=Male F=Female
Standard Calibration is performed loading clockwise only

4	STATIC TRANSDUCERS	
50703.xxx	250-2500 N·m	1½" M x 1½" F
50791.xxx	300-3000 N·m	1½" M x 1½" F
50599.xxx	500-5000 N·m	1½" M x 1½" F
50669.xxx@	700-7000 N·m	1½" M x 1½" F
50704.xxx	250-2500 lbf·ft	1½" M x 1½" F
50630.xxx	500-5000 lbf·ft	1½" M x 1½" F
TD5.CCW@	Alternative calibration direction for transducers from 1501 N·m to 7000 N·m / 1001 lbf·ft to 5000 lbf·ft when ordered with new unit	
50776.xxx	1000-10000 N·m	2½" M x 2½" F
50603.xxx	2500-25000 N·m	2½" M x 2½" M
50797.xxx	2500-25000 N·m	2½" M x 2½" F
50781.xxx	5000-50000 N·m	2½" M x 2½" F
50794.xxx*	5000-50000 N·m	3½" M x 3½" M
50783.xxx	8000-80000 N·m	3½" M x 3½" F
50796.xxx	10000-100000 N·m	3½" M x 3½" M
50777.xxx	1000-10000 lbf·ft	2½" M x 2½" F
50633.xxx	1000-10000 lbf·ft	2½" M x 2½" M
50635.xxx	2500-25000 lbf·ft	2½" M x 2½" M
50798.xxx	2500-25000 lbf·ft	2½" M x 2½" F
50799.xxx	3000-30000 lbf·ft	2½" M x 2½" F
50795.xxx	5000-50000 lbf·ft	3½" M x 3½" M
50782.xxx	6000-60000 lbf·ft	3½" M x 3½" F
50637.xxx+	10000-100000 lbf·ft	3½" M x 3½" M
TD3.CCW+	Alternative calibration direction for transducers from 7001 N·m to 100000 N·m / 5001 lbf·ft to 100000 lbf·ft when ordered with new unit	
-	15000-150000 N·m	4½" M x 4½" M
-	20000-200000 N·m	4½" M x 4½" M

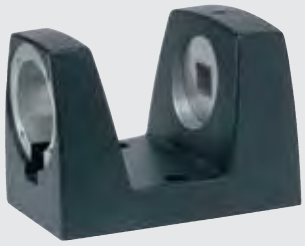
* .LOG versions not suitable for TST, TTT or TTL-HE, but can be used with T-Box.

@ UKAS accredited calibration up to 6000 N·m. A non accredited value at 7000 N·m is extrapolated and provided for reference only.

\+ UKAS accredited calibration up to 80000 lbf·ft. A non accredited value at 100000 lbf·ft is extrapolated and provided for reference only.

STATIC TRANSDUCERS (continued)

4	STATIC TRANSDUCERS
SECCAL.CW	Secondary Calibration in one direction on static transducers with 2.5" square drives to extend the range below 10% of the rated capacity, when ordered with new unit
SECCAL.CW+CCW	Secondary Calibration in two directions on static transducers with 2.5" square drives to extend the range below 10% of the rated capacity, when ordered with new unit
ADDCALPOINTS. NEW	Additional calibration steps below 10% of rated capacity to 2% for transducers up to 7000 N·m (5000 lbf·ft) when ordered with new unit



Bench stands ensure the correct mounting of Norbar's Static Torque Transducers up to 5000 N·m (5000 lbf·ft).

4	BENCH STANDS FOR STATIC TORQUE TRANSDUCERS
50211	Small frame size (10 N·m) ¼" sq.
50212	Small frame size (50 N·m) ⅜" sq.
50213	Small frame size (100/250 N·m) ½" sq.
50220	Large frame size (250/500 N·m) ¾" sq.
50221	Large frame size (1000/1500 N·m) 1" sq.
50127.BLK9005	Extra large size (7000 N·m) 1½" sq.
52014	¼" Insert for Small Bench Stands
52015	⅜" Insert for Small Bench Stands
52016	½" Insert for Small Bench Stands
52017	¾" Insert for Large Bench Stands
52018	1" Insert for Large Bench Stands



ROTARY TRANSDUCERS



Rotary transducers are designed to measure the torque from continuously rotating shafts such as Impulse Power Tools and certain non-impulse tools with a severe clutch action.

This range offers class leading performance with impulse tools and will be supplied with a UKAS accredited calibration certificate from Norbar's laboratory.
These trandsucers are known as 'SMART' transducers. They have built-in intelligence in the form of a memory circuit which contains essential information about the transducer which can be read by the appropriate type of instrument (TST, TTT, TTL-HE & T-Box XL™), thus reducing set-up time.
They will also work with instruments that cannot read the memory information, by inputting the relevant calibration details manually.
Not for use with Impact Tools.
Angle measurement also available.

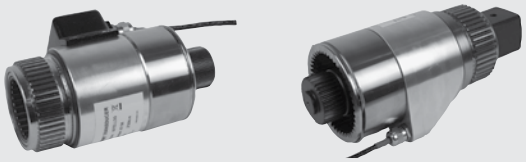
4	ROTARY TRANSDUCERS
50708.xxx	0.25-5 N·m ¼" M/F Hex
50709.xxx	1-20 N·m ¼" M/F Hex
50710.xxx	1-20 N·m ¼" F/M sq. dr.
50719.xxx	0.75-15 lbf·ft ¼" F/M sq. dr.
50711.xxx	3.75-75 N·m ⅜" F/M sq. dr.
50720.xxx	2.5-50 lbf·ft ⅜" F/M sq. dr.
50712.xxx	10-200 N·m ½" F/M sq. dr.
50721.xxx	7.5-150 lbf·ft ½" F/M sq. dr.
50713.xxx	12.5-250 N·m ¾" F/M sq. dr.
50722.xxx	10-200 lbf·ft ¾" F/M sq. dr.
50714.xxx	25-500 N·m ¾" F/M sq. dr.
50723.xxx	15-300 lbf·ft ¾" F/M sq. dr.
50715.xxx	75-1500 N·m 1" F/M sq. dr.
50724.xxx	50-1000 lbf·ft 1" F/M sq. dr.
TD2. CCW	Counter clockwise calibration.

Angle options available, contact Norbar.

ANNULAR TRANSDUCERS

These Annular Transducers are designed to fit directly to Norbar torque multipliers and will accurately measure the torque output from the gearbox, via a display instrument (Instrument supplied separately).

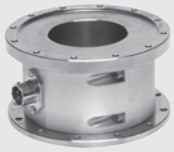
- Up to 5000 N·m (5000 lbf·ft) classified to BS7882:2008, typically better than Class 1 for the primary classification range (±0.5% of reading from 20% to 100% of full scale).
- Robust heat treated alloy steel torsion tube design.
- Designed to ignore non torsional forces.





4	ANNULAR TRANSDUCERS FOR HT/ET/PTM-92 AND HT/ET/PTM-119 SERIES
Suitable for HT/ET/PTM-92	
50753.xxx	270-2700 N·m 1" sq. dr.
50793.xxx	400-4000 N·m 1" sq. dr.
Suitable for HT/ET/PTM-119	
50755.xxx	450-4500 N·m 1½" sq. dr.
50756.xxx	600-6000 N·m 1½" sq. dr.

Standard Calibration is performed loading counter clockwise only.



4	ANNULAR TRANSDUCERS FOR 72MM SERIES GEARBOX (HT & PT) (Not suitable for PTM tools)
Suitable for PT 72mm Remote series and HT-72	
50666.xxx	100-1000 N·m
50667.xxx	150-1500 N·m
50668.xxx	200-2000 N·m

Standard Calibration is performed loading counter clockwise only. (Not suitable for PTM tools).

4	ANNULAR TRANSDUCERS FOR SMALL DIAMETER SERIES GEARBOX (HT & PT)
Suitable for HT60 and PT5500	
50663.xxx	600-6000 N·m 1½" sq. dr.

Standard Calibration is performed loading counter clockwise only.

- 'SMART' transducers have a built in memory circuit which contains essential information about the transducer. This information can be read by Norbar's TST, TTT, TTL-HE & T-Box XL™ instruments meaning that when the transducer is connected, it is immediately recognised and ready for use.
- 'SMART' transducers can also be used with many other instruments. However, these will operate as normal ratio calibrated (mV/V) transducers - the 'SMART' data will not be read.

4	ANNULAR TRANSDUCERS FOR STANDARD SERIES GEARBOX
Suitable for PT1, PT1A and PT2	
50638.xxx	100-1000 N·m ¾" sq. dr.
50648.xxx	100-1000 lbf·ft ¾" sq. dr.
Suitable for heavy duty HT2, PT1, PT1A and PT2	
50639.xxx	150-1500 N·m 1" sq. dr.
50649.xxx	150-1500 lbf·ft 1" sq. dr.
TD2.CCW	Alternative calibration direction for transducers up to 1500 N·m / 1000 lbf·ft when ordered with new unit
50640.xxx	250-2500 N·m 1" sq. dr.
50650.xxx	250-2500 lbf·ft 1" sq. dr.
50641.xxx	350-3500 N·m 1" sq. dr.
Suitable for HT5 and PT5	
50700.xxx	350-3500 N·m 1½" sq.dr.
Suitable for HT6 and PT6	
50643.xxx	500-5000 N·m 1½" sq. dr.
50652.xxx	500-5000 lbf·ft 1½" sq. dr.
TD5.CCW[@]	Alternative calibration direction for transducers from 1501 N·m to 7000 N·m / 1001 lbf·ft to 5000 lbf·ft when ordered with new unit

4	ANNULAR TRANSDUCERS FOR STANDARD SERIES GEARBOX
Suitable for HT9 and PT9	
50644.xxx	1000-10000 N·m 1½" sq. dr.
Suitable for HT12 and PT12	
50645.xxx	2000-20000 N·m 2½" sq. dr.
50654.xxx	1500-15000 lbf·ft 2½" sq. dr.
50764.xxx	3500-35000 N·m 2½" sq. dr.
50765.xxx	2500-25000 lbf·ft 2½" sq. dr.
Suitable for HT13 and PT13	
50646.xxx	5000-50000 N·m 2½" sq. dr.
Suitable for PT14	
50647.xxx	10000-100000 N·m 3½" sq. dr.
TD4.CCW	Alternative calibration direction for tranducers from 7001 N·m to 100000 N·m / 5001 lbf·ft to 75000 lbf·ft when ordered with new unit
-	30000-300000 N·m
Suitable for PT18.MTS Standard Calibration is performed loading counter clockwise only.	

[@] UKAS accredited calibration up to 6000 N·m. A non accredited value at 7000 N·m is extrapolated and provided

ANNULAR TRANSDUCERS (continued)



Fixed Connector



180° Swivel Connector

4	TORQUE & ANGLE ANNULAR TRANSDUCERS
Suitable for heavy duty PT1, PT1A and PT2	
50820.LOGA*	100-1000 N·m ¾" sq. dr. Fixed Connector
50821.LOGA*+	150-1500 N·m 1" sq. dr. Fixed Connector

* Can only be used with remote/plain sleeve motors i.e. not a standard PT handle, due to cable interference
+ Only fits to PT with HD final stage carrier having 1" female sq. dr.

Suitable for HT5 and PT5	
50822.LOGA	350-3500 N·m 1" sq. dr. Fixed Connector
Suitable for HT7 and PT7	
50823.LOGA	500-5000 N·m 1½" sq. dr. 180° Swivel Connector
Suitable for HT9 and PT9	
50824.LOGA	1000-10000 N·m 1½" sq. dr. 180° Swivel Connector
Suitable for HT11 and PT11	
50825.LOGA@	2000-20000 N·m 2½" sq. dr. 180° Swivel Connector

@ Special reaction mount

Suitable for HT12 and PT12	
50826.LOGA	3500-35000 N·m 2½" sq. dr. 180° Swivel Connector
Suitable for HT13 and PT13	
50827.LOGA	5000-50000 N·m 2½" sq. dr. 180° Swivel Connector
Suitable for HT14 and PT14	
50828.LOGA	10000-100000 N·m 3½" sq. dr. 180° Swivel Connector

PT13 & PT14 require special front cover plate with added dowel clearance holes

Suitable for HT15 and PT15	
50832.LOGA	15000-150000 N·m 4½" sq. dr. 180° Swivel Connector
Suitable for HT16 and PT16	
50829.LOGA	20000-200000 N·m 5" sq. dr. 180° Swivel Connector
Suitable for HT17 and PT17	
50830.LOGA	25000-250000 N·m 6" sq. dr. 180° Swivel Connector
Suitable for HT18 and PT18	
50831.LOGA	30000-300000 N·m 6" sq. dr. 180° Swivel Connector

Torque and Angle Annular Transducer Note:

- 5000 N.m and above include dowels on both mounting faces.
- Angle resolution < 1° when used with T-Box XL™.
- CW+CCW calibration is standard.
- Use 60308.xxx series lead for direct connection to T-Box XL™ for torque and angle/turns monitoring and storage.
- PT square drive and other parts may require removal to fit transducer.
- All the above are standard construction. Harsh Environment models are available on request.
- '.INDA' versions are available on request.

Note: PTs and reactions with dowel holes can be supplied at an extra cost on request.

4	ANNULAR TRANSDUCERS
SECCAL.CW	Secondary Calibration in one direction on annular transducers for HT/PT9 & HT/PT11 to extend the range below 10% of the rated capacity, when ordered with new unit
SECCAL.CW+CCW	Secondary Calibration in two directions on annular transducers for HT/PT9 & HT/PT11 to extend the range below 10% of the rated capacity, when ordered with new unit

If ordering a static, annular or rotary transducer you will also require a corresponding lead (see list below). To comply with the latest calibration standards, most new transducer leads will have a suffix to indicate the length in centimetres.

4	TRANSDUCER LEADS
60216.200	PRO-LOG, TST, TTT & T-Box XL™ to 10 Way Transducer for use with Norbar Rotary Transducers
60217.200	PRO-LOG, TST, TTT & T-Box XL™ to 6 Way Transducer for use with Norbar Static & Annular Transducers
60223.200	PRO-LOG, TST, TTT & T-Box XL™ to no connector
60224.200	10 Way Transducer to no connector
60225.200	6 Way Transducer to no connector
51067.225	ETS to Transducer (Pre 1994) + 5 way (60055)
60152.225	ETS to Transducer (Post 1994) + 5 way (60163)
60308.400	PRO-LOG, TST, TTT & T-Box XL™ to Torque & Angle Annular Transducers
60308.600	PRO-LOG, TST, TTT & T-Box XL™ to Torque & Angle Annular Transducers
60308.1000	PRO-LOG, TST, TTT & T-Box XL™ to Torque & Angle Annular Transducers

Note: The system should be calibrated with the increased length lead, as calibration may be effected.

Note: The maximum permissible cable length is 15m for TST or TTT, 7m for T-Box XL™. Contact Norbar for further details.

LOADERS & ATTACHMENTS

These products allow torque wrenches to be calibrated or tested in accordance with ISO 6789:2003 and BS EN 26789:2003. Their function is to take full advantage of the accuracy of Norbar's torque measuring systems by reducing operator induced variations in the calibration process.



4	TORQUE WRENCH LOADERS
60300	Loader with 90° rotation, ISO 1500 N·m
60299	Longer Reaction Bar for obsolete version ISO 1500 (Part No. 60118)



60193	Motorised ISO 1500 N·m
60194	Kit to motorise a 60118 or 60300 (ISO 1500)
20606	Reaction Plate for small Torque Wrenches
60237	Motorised Torque wrench loader Lead to TTT or TST

Note: 60237 is required when converting a pre 2003 motorised loader from ETS display to TTT or TST display system.



20505	Loader, ISO 3000 N·m
20506	Motorised ISO 3000 N·m

The design of the TWL1500 includes features that will provide an accurate and cost effective method for the calibration or testing of torque wrenches.

Designed to suit the majority of torque wrenches available with a torque value between 1 and 1500 N·m, the TWL1500 has been manufactured using quality materials that will provide many years of continuous, trouble-free operation.

The most significant feature of the TWL1500 is its compatibility with our wide range of Flange Mounted and Pro-Test transducers. All fixtures, fastener kits and instructions are supplied allowing for complete flexibility and functionality.



TWL 1500 shown with Flange Mounted Transducers, TTT and Model 1000 torque wrench. (Not included)

4	TORQUE WRENCH LOADER
60246	TWL 1500 Torque Wrench Loader

Note: TWL 1500 comes with mounting blocks for FMT, Pro-Test and STB (old style TWA) transducers.



TEST FIXTURES

The Norbar Joint Simulation Rundown Assemblies are designed to simulate the working conditions of screwed or bolted joints. Used in conjunction with a Norbar transducer and display instrument, the output of torque controlled power tools can be measured against a range of simulated joint rates, from hard through to soft.





4	JOINT SIMULATION RUNDOWN ASSEMBLIES
50313	0.2-2 N·m (2-20 lbf·in)
50251	2-10 N·m (20-100 lbf·in)
50252	5-50 N·m (5-50 lbf·ft)
50253	10-100 N·m (10-100 lbf·ft)
50254*	100-500 N·m (100-500 lbf·ft)

The above are for use with Norbar static square to square transducers and bench stands.

* To be used with large frame size bench stands, all others to be used with small frame bench stands.

50693	10-140 N·m (10-100 lbf·ft)
50694	100-700 N·m (70-500 lbf·ft)

The above are for use with the Norbar STB1000.



Shown with TruCheck™ Plus 1000 (not included)

4	POWER TOOL TEST FIXTURE FOR TRUCHECK™ PLUS 1000 AND 2000
50757	Power Tool Test Fixture for TruCheck™ Plus 1000
50774	Power Tool Test Fixture for TruCheck™ Plus 2000
50758	1000 N·m Joint Simulator Rundown Assembly
50775	2000 N·m Joint Simulator Rundown Assembly

4	WASHER STACKS FOR JOINT SIMULATION RUNDOWN ASSEMBLIES
50175	0.2-0.7 N·m Stack A for use with 50313
50176	0.5-1.4 N·m Stack B for use with 50313
50177	1.2-2.8 N·m Stack C for use with 50313
50178	2-6 N·m Stack D for use with 50251
50179	6-12 N·m Stack E for use with 50251
50695	5-30 N·m Stack A for use with 50252
50696	20-50 N·m Stack B for use with 50252
50697	50-70 N·m Stack C for use with 50252
50180	10-50 N·m Stack F for use with 50253 and 50693
50192	30-100 N·m Stack G for use with 50253 and 50693
50698	80-140 N·m Stack H for use with 50253 and 50693



Shown with 1½" M/F Static Transducer (not included)

4	ET/PT POWER TOOL TEST RIG
50800	7000 N·m ET, PT Power Tool Test Rig (supplied with ¾", 1" and 1½" sq. dr. adaptors)
50803	7000 N·m ET, PT Power Tool Test Rig without Reaction Plates (supplied with ¾", 1" and 1½" sq. dr. adaptors)

Note: The static transducer 50669.LOG does not come supplied as standard with the tool test rig. The standard range of 700 - 7000 N·m will not cover the full powered multiplier range, additional calibration may be required, please see below:

ADDCALPOINTS.NEW
Additional calibration steps below 10% of rated capacity to 2% for transducers up to 7000 N·m (5000 lbf·ft) when ordered with new unit

TEST FIXTURES



1½" M/F Static Transducer required (not included)

4	7000 N.m UNIVERSAL TOOL TEST RIGS
50801	Universal 7000 N·m ET, PT & Hydraulic Tool Test Rig (supplied with ¾", 1" and 1½" sq. dr. adaptors)
50804	Universal 7000 N·m ET, PT & Hydraulic Tool Test Rig without Reaction Plates (supplied with ¾", 1" and 1½" sq. dr. adaptors)



Universal Hydraulic Tool Test Rig with Reaction Plates (50801)



4	SPARES FOR 50800, 50801, 50803 & 50804
50800.29	2" AF Socket 1½" sq. dr.
50800.28	2" AF Socket 1" sq. dr.
50800.27	2" AF Socket ¾" sq. dr.



50800.26	Special 2" UNC Bolt
50800.25	Type B UNC High Tensile 2" UNC Nut
50548.4	Washer Stack Kit 100 - 7000 N·m (Also for use with RD5000)

See page 54 for accessories for use with Hydraulic Tool Calibration Fixture

4	REACTION PLATES FOR USE WITH 50803 & 50804



81024	Suitable for ET/PTM 119, PT 4500 and PT 5500



81025	Suitable for ET/PTM 92



81026	Suitable for ET/PT/PTM 72



81027	Suitable for PTM 52



81028	Suitable for PT 2700



81029	Suitable for PT 1, PT 1A and PT 2



81030	Suitable for PT 5 and PT 6



81031	Suitable for PT 7



81032	Blank Reaction Plate for Universal Test Rigs

HYDRAULIC TOOL CALIBRATION FIXTURES

Norbar's Hydraulic Tool Calibration Fixture is a robust device that allows accurate testing of hydraulic torque wrenches. A system comprises of a Calibration Fixture and Transducer, also required is a torque measuring instrument and transducer cable.

- Bearing support for transducer gives improved accuracy.
- Interchangeable stainless steel square and round reaction posts.
- Hardened steel inserts to location reaction posts in two positions: suits most hydraulic wrenches.
- Optimised material sections for robust but portable design.
- For hexagon link wrenches, a wide range of hexagon to square adaptors are available.

HYDRAULIC TOOL CALIBRATION FIXTURES



Hydraulic Tool Calibration Fixture shown with Transducer (Transducer not included)

4	CALIBRATION FIXTURES
80026	Hydraulic Calibration Fixture up to 7000 N·m
80022	Hydraulic Calibration Fixture up to 50000 N·m
80023	Hydraulic Calibration Fixture up to 80000 N·m
81022	Reaction Bar for 80026
81023	Reaction Bar for 80022

4	TRANSDUCERS FOR USE WITH 80026
50703.xxx*	250-2500 N·m 1½" sq. dr. M/F
50704.xxx*	250-2500 lbf·ft 1½" sq. dr. M/F
50599.xxx*	500-5000 N·m 1½" sq. dr. M/F
50630.xxx*	500-5000 lbf·ft 1½" sq. dr. M/F
50669.xxx*	700-7000 N·m 1½" sq. dr. M/F

4	TRANSDUCERS FOR USE WITH 80022
50776.xxx@	1000-10000 N·m 2½" sq. dr. M/F
50777.xxx@	1000-10000 lbf·ft 2½" sq. dr. M/F
50781.xxx@	5000-50000 N·m 2½" sq. dr. M/F
50798.xxx@	25000 lbf·ft 2½" sq. dr. M/F

4	TRANSDUCERS FOR USE WITH 80023
50782.xxx	6000-60000 lbf·ft 3½" sq. dr. M/F
50783.xxx	8000-80000 N·m 3½" sq. dr. M/F

Harsh Environment Transducers available on request.

9	DUAL CALIBRATION FIXTURE
80030	Dual Calibration Fixture

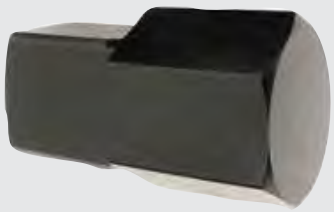
9	ADDITIONAL CALIBRATION

The transducers shown include clockwise only calibration from 10% to 100% of rated capacity. For other calibration options, see below:

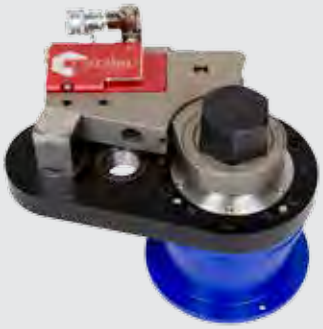
***ADDCALPOINTS.NEW**
Additional calibration steps below 10% of rated capacity to 2% for transducers up to 7000 N·m (5000 lbf·ft) when ordered with new unit

@SECCAL.CW
Secondary Calibration in one direction on static transducers with 2.5" square drives to extend the range below 10% of the rated capacity, when ordered with new unit

SECCAL.CW+CCW
Secondary Calibration in two directions on static transducers with 2.5" square drives to extend the range below 10% of the rated capacity, when ordered with new unit



Hexagon to Square



Fixture shown with Hydraulic Torque Wrench

4	HEXAGON TO SQUARE ADAPTORS - METRIC
29619.24	24mm Hex to 1½" Sq. (Max 3000 N·m)
29619.27	27mm Hex to 1½" Sq. (Max 4000 N·m)
29619.30	30mm Hex to 1½" Sq. (Max 4000 N·m)
29619.32	32mm Hex to 1½" Sq. (Max 4900 N·m)
29619.36	36mm Hex to 1½" Sq. (Max 7000 N·m)
29619.41	41mm Hex to 1½" Sq. (Max 8700 N·m)
29619.46	46mm Hex to 1½" Sq. (Max 8700 N·m)
29619.50	50mm Hex to 1½" Sq. (Max 8700 N·m)
29619.55	55mm Hex to 1½" Sq. (Max 8700 N·m)
29619.60	60mm Hex to 1½" Sq. (Max 8700 N·m)
29619.65	65mm Hex to 1½" Sq. (Max 8700 N·m)
29619.70	70mm Hex to 1½" Sq. (Max 8700 N·m)
29619.75	75mm Hex to 1½" Sq. (Max 8700 N·m)
29619.80	80mm Hex to 1½" Sq. (Max 8700 N·m)
29620.50	50mm Hex to 2½" Sq. (Max 18500 N·m)
29620.55	55mm Hex to 2½" Sq. (Max 25000 N·m)
29620.60	60mm Hex to 2½" Sq. (Max 32000 N·m)
29620.65	65mm Hex to 2½" Sq. (Max 36000 N·m)
29620.70	70mm Hex to 2½" Sq. (Max 36000 N·m)
29620.75	75mm Hex to 2½" Sq. (Max 36000 N·m)
29620.80	80mm Hex to 2½" Sq. (Max 59000 N·m)
29620.85	85mm Hex to 2½" Sq. (Max 59000 N·m)
29620.90	90mm Hex to 2½" Sq. (Max 59000 N·m)
29620.95	95mm Hex to 2½" Sq. (Max 59000 N·m)
29620.100	100mm Hex to 2½" Sq. (Max 52000 N·m)
29620.105	105mm Hex to 2½" Sq. (Max 52000 N·m)
29620.110	110mm Hex to 2½" Sq. (Max 52000 N·m)
29620.115	115mm Hex to 2½" Sq. (Max 52000 N·m)
29620.130	130mm Hex to 2½" Sq. (Max 52000 N·m)

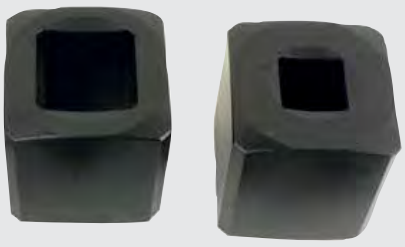
4	HEXAGON TO SQUARE ADAPTORS - IMPERIAL
29623.120	1¼" Hex to 1½" Sq. (Max 4900 N·m)
29623.123	1 7/16" Hex to 1½" Sq. (Max 7000 N·m)
29623.126	1 5/8" Hex to 1½" Sq. (Max 8700 N·m)
29623.129	1 13/16" Hex to 1½" Sq. (Max 8700 N·m)
29623.132	2" Hex to 1½" Sq. (Max 8700 N·m)
29623.135	2 3/16" Hex to 1½" Sq. (Max 8700 N·m)
29623.138	2 3/8" Hex to 1½" Sq. (Max 8700 N·m)
29623.141	2 9/16" Hex to 1½" Sq. (Max 8700 N·m)
29624.135	2 3/16" Hex to 2½" Sq. (Max 25000 N·m)
29624.138	2 3/8" Hex to 2½" Sq. (Max 32000 N·m)
29624.141	2 9/16" Hex to 2½" Sq. (Max 36000 N·m)
29624.144	2¾" Hex to 2½" Sq. (Max 36000 N·m)
29624.147	2 15/16" Hex to 2½" Sq. (Max 36000 N·m)
29624.150	3 1/8 " Hex to 2½" Sq. (Max 59000 N·m)
29624.156	3½" Hex to 2½" Sq. (Max 59000 N·m)
29624.162	3 7/8" Hex to 2½" Sq. (Max 52000 N·m)
29624.168	4¼" Hex to 2½" Sq. (Max 52000 N·m)
29624.174	4 5/8 " Hex to 2½" Sq. (Max 52000 N·m)
29624.180	5" Hex to 2½" Sq. (Max 52000 N·m)
29624.186	5 3/8" Hex to 2½" Sq. (Max 52000 N·m)
29624.198	6 1/8" Hex to 2½" Sq. (Max 52000 N·m)

4	SLEEVE ADAPTORS
86034.4	Adaptor 1½" Male sq. ¾" Female sq.
21214	Adaptor 1½" Male sq. 1" Female sq.
29617	Adaptor 2½" Male sq. 1½" Female sq.
29618	Adaptor 3½" Male sq. 2½" Female sq.

Special 'Engineer to Order' hexagon and square adaptors available on request.



Dual Calibration Fixture
Part No. 80030



Sleeve Adaptor

HARSH ENVIRONMENT INSTRUMENTS

Norbar have worked closely with the oil and gas industry to produce a range of torque instruments and transducers suitable for use in the harshest environments such as ship decks, oil rigs and refineries. Norbar uses a variety of corrosion resistant materials, high specification connectors and sealing techniques meaning that products in our HE range can be used in such environments without impairing their performance or life span. Although originally designed to meet the needs of the oil and gas industry, Norbar's HE range is the ideal choice whenever it is necessary to apply or measure torque outdoors in potentially wet or dusty conditions.

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HARSH ENVIRONMENT INSTRUMENT



TTL-HE is a portable torque measuring instrument designed for use in harsh environments. The TTL-HE operating on battery power with one of the 'HE' range of transducers connected, has an ingress protection rating of IP65/IP67. Typical operating environments are where high humidity, water or salt water spray and dust may be an issue. Features include; 10 measurement modes, 13 units of torque (with additional USER units feature), 12 pairs of limits and text displayed in 11 languages.

- IP65/67 rated
- Bi-directional calibration
- Battery power use in harsh environments (mains supply for charging)
- All features are in common with TST and TTT instruments
- Supplied in IP67 rated carry case
- Please contact Norbar for full details of available transducers

4	HARSH ENVIRONMENT RANGE
43217	TTL-HE Instrument (inc. IP67 rated carry case)

Supplied with clock and counter-clockwise calibration

HARSH ENVIRONMENT TRANSDUCERS

The accuracy and quality of the Norbar Torque Transducers has made them the first choice of many calibration laboratories throughout the world. The Harsh Environment Range of Transducers has been specifically designed for use with the Norbar TTL-HE Instrument.





4	STATIC TRANSDUCERS
50787.xxx	300-3000 N·m 1½" M/F sq. dr.
50751.xxx*	300-3000 N·m 1½" M/M sq. dr.
50705.xxx	500-5000 N·m 1½" M/F sq. dr.
50729.xxx*	500-5000 N·m 1½" M/M sq. dr.
50706.xxx	500-5000 lbf·ft 1½" M/F sq. dr.
50728.xxx	1000-10000 N·m 2½" M/F sq. dr.
50788.xxx	1000-10000 N·m 2½" M/ 2" M sq. dr.
50789.xxx	1500-15000 N·m 2½" M/ 2⅝" M sq. dr.
50726.xxx	2500-25000 N·m 3½" M/M sq. dr.
50727.xxx	4000-40000 N·m 3½" M/M sq. dr.
50743.xxx+	10000-100000 lbf·ft 3½" M/M sq. dr.

* Suitable for use in Hydraulic Test Pots.
+ UKAS accredited calibration up to 80000 lbf·ft. A non accredited value at 100000 lbf·ft is extrapolated and provided for reference only.
Static Transducers 3000 N·m and above supplied in carry case.

4	ANNULAR TRANSDUCERS
50767.xxx	100 - 1000 N·m including drive shaft
50745.xxx	350 - 3500 N·m including drive shaft
50725.xxx	1000 - 10000 N·m no drive shaft

Other transducers available upon request.
All above HE transducers supplied with clockwise and counter clockwise calibration.

Designed for use with the Harsh Environment Instrument range (TTL-HE) of products

4	INSTRUMENTATION LEADS
60245.200	TTL-HE to HE Transducer
60250.200	TTL-HE to Norbar Static & Annular Transducers
60263.200	TTL-HE to Rotary Transducers
60266.200	HE Transducer to TTT, TST and T-Box XL™
60261.200	Serial Data Lead for TTL-HE

Note: The system should be calibrated with the increased length lead, as calibration may be affected.

Note: The maximum permissible cable length 15m for Transducer Leads, 7m if using 60266 with a T-Box XL™. Contact Norbar for further details.

INTERVENTION TOOL TEST POTS



These reaction pots allow for the accurate testing of API rotary intervention tools.

- Conform to ISO13628-8:2002 and API 170 First Edition
- Customer specific solutions also available
- Lightweight all aluminium construction
- Incorporated lifting handles
- Eye bolts provided on larger units

4	INTERVENTION TOOL TEST POTS
80019	ISO13628-8:2002 Class 4 Intervention Tool Test Pot
80024	ISO13628-8:2002 Class 5 Intervention Tool Test Pot
80025	ISO13628-8:2002 Class 6 Intervention Tool Test Pot
80020	API 170 First Edition Intervention Tool Test Pot
81018	Deck Mount Kit for API Verification Pot

TTL-HE INSTRUMENT AND TRANSDUCER KITS



4	TTL-HE INSTRUMENT AND TRANSDUCER KITS
60287.LOG	5000 N·m M/M TTL-HE Kit, inc. Lead (Class 4)
60295.LOG	10000 N·m M/M TTL-HE Kit, inc. Lead (Class 5)
60296.LOG	15000 N·m M/M TTL-HE Kit, inc. Lead (Class 6)
60289.LOG	40000 N·m M/M TTL-HE Kit, inc. Lead (Class 7)

Note: Kits for use with Intervention Tool Test Pots

INTERVENTION TOOL VERIFICATION KITS

Each kit comprises a test pot, an instrument, a transducer and a transducer lead in a water tight carry case.



4	INTERVENTION TOOL TORQUE VERIFICATION KIT
60278.xxx	3000 N·m ISO13628 Class 4 Intervention Tool Torque Verification Kit
60281.xxx	10000 N·m ISO13628 Class 5 Intervention Tool Torque Verification Kit
60282.xxx	15000 N·m ISO13628 Class 6 Intervention Tool Torque Verification Kit
60279.xxx	25000 N·m API 170 Class 7 (short) Intervention Tool Test Kit
60280.xxx	40000 N·m API 170 Class 7 (short) Intervention Tool Test Kit

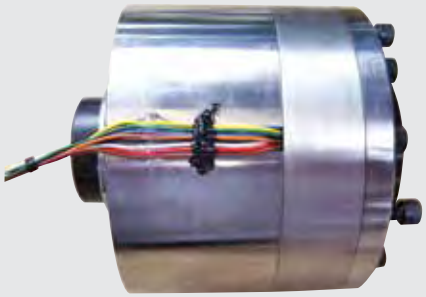
Other Test Pots and Torque Verification Kits are available for standard and non standard API Intervention tool test and verification.
Please contact Norbar.



Wet Pipe Clamp Tool under test

MULTIPLIERS FOR SUBSEA

4	MULTIPLIERS FOR INTEGRATION INTO SUB SEA INTERVENTION TOOLS
77331	HT5 5:1 for Sub Sea Intervention Tools
77301	HT5 5:1 for Sub Sea Splined Output



As above but supplied with transducer with an accuracy of ±2%.

4	MULTIPLIERS WITH INTEGRATED TRANSDUCER
77141.IND	HT5 5:1 with Integrated Transducer 350 - 3500 N·m
77142.MAO2	HT5 5:1 with Integrated Transducer 4 - 20 mA 2 wire 350 - 3500 N·m

ENGINEER TO ORDER

Norbar's wide range of standard equipment notwithstanding, there are applications when something special is required.

As an ISO9001 accredited company, Norbar will undertake the design and manufacture of special equipment against agreed customer specifications.

These projects range from modified torque wrench end fittings to complete torque and angle control of valve testing kits. Relevant European safety directives are applied where appropriate, leading to well engineered reliable products that are designed to make tasks safer and easier.

For more information on Norbar's Engineer to Order service please e-mail your enquiry to technical@norbar.com or visit the Engineer to Order section of the Norbar website at: www.norbar.com/en-gb/Services/Engineer-to-Order



Valve Testing Kit



Pipe Clamp Actuation Tool



Remote Operated Torque & Angle Kits

Subsea Torque Multipliers (Class 4-6/7 shown)



ULTRASONIC MEASUREMENT

As design engineers push the boundaries to provide greater strength and efficiency in bolted joints, the use of torque, torque and angle, or even tensioning as the method of tension control may not be adequate, leading to costly failures. In those applications, ultrasonic bolt elongation/load measurement is able to provide accuracy equal to strain gauging without the need to strain gauge a bolt. In addition, the use of ultrasonic bolt measurement allows the user to return at any time and re-verify the level of tension in each fastener over its service life. The USM-3 has been both laboratory and field-proven to be the most accurate, reliable and cost effective solution to bolting failures which could place workers at risk, lead to the loss of production and/or cause damage to capital equipment.

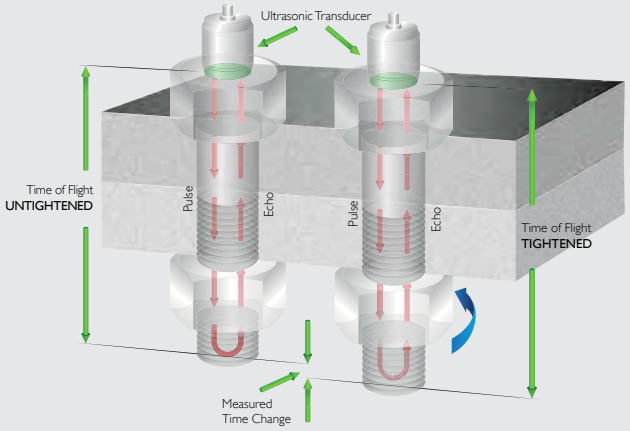
USM

ABOUT USM-3

The basic principle behind this method of tension control is similar to sonar. The ultrasonic measurement of bolt tension is achieved by introducing a sonic pulse at one end of the fastener and accurately measuring the time of flight (TOF) required for the echo to return from the opposite end. Using material constants, the USM-3 converts this TOF into an "acoustic length" of the fastener, providing a baseline from which future measurements will be made. When the fastener is tightened: the TOF increases and the USM-3 will again utilise material constants to eliminate the effects of stress and temperature variations on sound velocity, providing an accurate elongation or load measurement.

The USM-3 uses state of the art hardware and digital signal processing to achieve these measurements with maximum automation, minimizing the need for operator interpretation. Once measurements have been recorded to the USM-3 internal memory, the included SonicBolt software will transfer the data to a computer for backup of files, creation of project reports, and conversion of data to Excel format for further analysis. In addition, the analogue signal output can be used to automatically shut-off powered torque and tensioning tools based on elongation or load, in even the most demanding applications.

For more information visit **www.norbar.com**



Ultrasonic measurement provides a very precise method of determining the elongation of a fastener due to tightening. This elongation is proportional to the load force generated by the fastener.



9	USM-3 ULTRASONIC STRESS METER
40334	USM-3 instrument with AC adaptor, nylon case, storage case, transducer cable, RS232 cable, couplant and manual

Magnetic Transducers - This standard style is used with ferrous materials, and consists of a rare earth magnet surrounding the piezo electric transducer.

9	TRANSDUCERS
56016	3/16" 5 MHz Magnetic Transducer
56017	3/16" 7.5 MHz Magnetic Transducer
56018	3/16" 10 MHz Magnetic Transducer
56009	1/4" 5 MHz Magnetic Transducer
56019	1/4" 10 MHz Magnetic Transducer
56011	1/2" 2.25 MHz Magnetic Transducer
56010	1/2" 5 MHz Magnetic Transducer
56020	3/4" 1 MHz Magnetic Transducer
56013	3/4" 2.25 MHz Magnetic Transducer
56012	3/4" 5 MHz Magnetic Transducer
56021	Glue on, 3mm square, 7.5 MHz, pack of 100

Operating temperature limit for transducers is 55°C. Contact Norbar for details of high temperature transducers with a temperature limit of 175°C.

9	TRANSDUCER LEADS
60235	Transducer Lead 10' (approx 3m)
60236	Transducer Lead 20' (approx 6m)
56023	Probe for glue on Ultrasonic TD's

9	SPARES & ACCESSORIES
61112	Ultrasonic Couplant Bottle 4oz (approx 0.12 litres)
61116	Serial Lead 6' DB9 M to DB9 F
61117	Length Bar Set 3" & 6" with certificate
60271	Digital Thermometer (Accuracy ±0.5°C / ±1°F)









CALIBRATION BEAMS & WEIGHTS

Designed to remove potential sources of measurement error, these beams can be used to calibrate Norbar torque transducers, and torque transducers from other manufacturers (where design permits), as well as mechanical test devices. UKAS length certification is provided with each beam. Note: A temperature controlled environment is essential for use of these beams. The selection of weights will be influenced by gravitational constant and air buoyancy values at the proposed laboratory site.

CALIBRATION BEAMS & WEIGHTS



9	NEWTON METRES SIZES	
21400	100mm	Radius Disc
21429	0.5-60 N·m	Radius Ended Beam
21421	5-150 N·m	Radius Ended Beam
21427	10-500 N·m	Radius Ended Beam
21428	10-1500 N·m	Radius Ended Beam
21842	500-5000 N·m	Free Standing Beam

With the exception of 21842 all calibration beams are supplied in a protective wooden box. A UKAS accredited calibration certificate for the measurement of the torque radius is provided with each beam.

9	WEIGHTS FOR THE DISC 21400
21452.NAM	Weight set to give 0.5 N·m
21450.NAM	Weight set to give 1.0 N·m
21479.NAM	Weight set to give 2.5 N·m

9	WEIGHTS FOR THE BEAM 21429
21476.NAM	Weight set to give 5 N·m
21454.NAM	Weight set to give 10 N·m
21458.NAM	Weight set to give 50 N·m
Q2343.NAM	Weight set to give 60 N·m

9	WEIGHTS FOR THE BEAM 21421
21477.NAM	Weight set to give 50 N·m
21458.NAM	Weight set to give 100 N·m

9	WEIGHTS FOR THE BEAM 21427/21428
21459.NAM	Weight set to give 250/500 N·m
Q2344.NAM	Weight set to give 400 N·m
21460.NAM	Weight set to give 500/1000 N·m
21483.NAM	Weight set to give 500/1000 & 1500 N·m

e.g. set 21459.NAM will give 250 N·m on a 21427 beam and 500 N·m on a 21428.

9	WEIGHTS FOR THE BEAM 21842
21469.NAM	Weight set to give 5000 N·m

All weight sets come with traceable UKAS accredited calibration certificate. This requires the customer to provide the value for "g" (local gravity) for the intended place of use when ordering.



Calibration Disc with weight sets

9	IMPERIAL - POUNDS FEET SIZES	
21430	10-500 lbf·in	Radius Ended Beam
21424	10-100 lbf·ft	Radius Ended Beam
21425	50-500 lbf·ft	Radius Ended Beam
21426	100-1000 lbf·ft	Radius Ended Beam
21842	500-5000 lbf·ft	Free Standing Beam

With the exception of 21842 all calibration beams are supplied in a protective wooden box. A UKAS accredited calibration certificate for the measurement of the torque radius is provided with each beam.

9	WEIGHTS FOR THE DISC 21400
21455.NAM	Weight set to give 50 ozf·in
21453.NAM	Weight set to give 100 ozf·in
21451.NAM	Weight set to give 160 ozf·in

9	WEIGHTS FOR THE BEAM 21430
21465.NAM	Weight set to give 100 lbf·in
21466.NAM	Weight set to give 500 lbf·in

9	WEIGHTS FOR THE BEAM 21424
21467.NAM	Weight set to give 100 lbf·ft.

9	WEIGHTS FOR THE BEAM 21425
21468.NAM	Weight set to give 500 lbf·ft

9	WEIGHTS FOR THE BEAM 21426
21468.NAM	Weight set to give 1000 lbf·ft

9	WEIGHTS FOR THE BEAM 21842
21469.NAM	Weight set to give 5000 lbf·ft

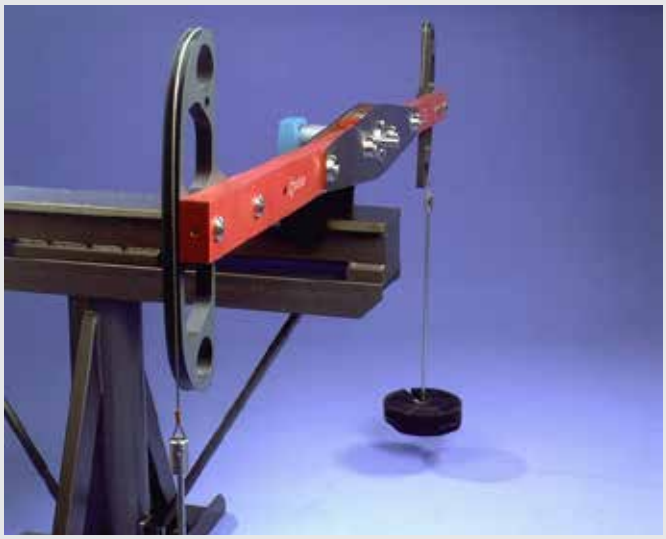
All weight sets come with a traceable UKAS accredited calibration certificate. This requires the customer to provide the value for "g" (local gravity) for the intended place of use when ordering.



9	ANCILLARY PRODUCTS FOR CALIBRATION BEAMS
80000	Pedestal for mounting calibration equipment
80005	Adjustable Angle Attachment
21221	Adaptor STM Calibration ½"

9	CALIBRATION FIXTURES
J2239	Transducer calibration fixture ¼" sq
J2237	Transducer calibration fixture ⅜" sq
J2244	Transducer calibration fixture ½" sq
J2240	Transducer calibration fixture ¾" sq
J2241	Transducer calibration fixture 1" sq
J3305	3° Angled Plate for use with J2241

All weight sets come with a traceable UKAS accredited calibration certificate. This requires the customer to provide the value for "g" (local gravity) for the intended place of use when ordering.



SPARES KITS

In order to maintain the quality, performance and peace of mind associated with their products Norbar recommend that only genuine Norbar spares are fitted to their products.

SERVICE REPLACEMENT POLICY

Our aim is to give you the fastest possible service when you send in a wrench for repair.Therefore, our policy is that all wrenches of up to 400 N·m and 'Industrial' torque wrenches sent in for repair will be exchanged for a 'Service Replacement' tool. This policy may be extended, at our discretion, to wrenches from other manufacturers sent to Norbar for repair/replacement. A 'Service Replacement' tool is manufactured from new parts, carries a twelve month warranty and is supplied with a calibration certificate.

The Part Number for ordering purposes is the same as the new torque wrench, followed by the letter 'R', eg. 13001R.

Professional models with a capacity above 400 N·m will be repaired on a parts plus labour basis unless the service replacement cost would be lower.

SPARES KITS

8	TORQUE SCREWDRIVER
13593.001NM	TTs Handle Repair Kit for 1.5 N·m Tool
13593.003NM	TTs Handle Repair Kit for 3.0 N·m Tool
13593.006NM	TTs Handle Repair Kit for 6.0 N·m Tool
13593.013LBI	TTs Handle Repair Kit for 13 lbf·in Tool
13593.026LBI	TTs Handle Repair Kit for 26 lbf·in Tool
13593.053LBI	TTs Handle Repair Kit for 53 lbf·in Tool
13593.P	TTs Handle Repair Kit for P Type Tool
13594	TTs Adjusting Screw & Retention Clip Repair Kit
13595	TTs Body Tube & Cam Assyembly Repair Kit
13596	TTs End Knob Assembly Repair Kit
13597	TTs ¼" Blade Repair Kit
13609	TTs P Type Locking Knob Repair Kit

8	TT WRENCHES UP TO 50 N·m/35 lbf·ft
13425	¼" Ratchet Repair Kit, Mdl 20 N·m, 180 lbf·in
13426	⅜" Ratchet Repair Kit, Mdl 20 N·m, 180 lbf·in, 50 N·m, 35 lbf·ft
13427	½" Ratchet Repair Kit, Mdl 50 N·m, 35 lbf·ft
13636.020NLF	Handle Repair Kit, 20 N·m/lbf·in Scale
13636.020NM	Handle Repair Kit, 20 N·m Scale
13636.180LBI	Handle Repair Kit, 180 lbf·in Scale
13636.050NLF	Handle Repair Kit, 50 N·m/lbf·ft Scale
13636.050NM	Handle Repair Kit, 50 N·m Scale
13636.035LBF	Handle Repair Kit, 35 lbf·ft Scale
13417	Adjusting Knob Repair Kit
13637	Thrust Washer Repair Kit
11762	Rivet Repair Kit

8	TT WRENCHES 100 N·m/75 lbf·ft TO 300 N·m/250 lbf·ft
13410.100NLF	Handle Repair Kit, 100 N·m/lbf·ft Scale
13410.100NM	Handle Repair Kit, 100 N·m Scale
13410.075LBF	Handle Repair Kit, 75 lbf·ft Scale
13410.150NLF	Handle Repair Kit, 150 N·m/lbf·ft Scale
13410.150NM	Handle Repair Kit, 150 N·m Scale
13410.110LBF	Handle Repair Kit, 110 lbf·ft Scale
13410.200NLF	Handle Repair Kit, 200 N·m/lbf·ft Scale
13410.200NM	Handle Repair Kit, 200 N·m Scale
13410.150LBF	Handle Repair Kit, 150 lbf·ft Scale
13410.250NLF	Handle Repair Kit, 250 N·m/lbf·ft Scale
13410.250NM	Handle Repair Kit, 250 N·m Scale
13410.185LBF	Handle Repair Kit, 185 lbf·ft Scale
13410.300NLF	Handle Repair Kit, 300 N·m/lbf·ft Scale
13410.300NM	Handle Repair Kit, 300 N·m Scale
13410.220LBF	Handle Repair Kit, 220 lbf·ft Scale
13410.250LBF	Handle Repair Kit, 250 lbf·ft Scale

8	TT WRENCHES 100 N·m/75 lbf·ft TO 300 N·m/250 lbf·ft
13411	Adjusting Knob Repair Kit
13415	Thrust Washer Repair Kit
13414	Rivet Repair Kit

8	TTi WRENCHES
13693	TTi20 ¼" Ratchet Lever Arm Assemblies
13694	TTi20 ⅜" Ratchet Lever Arm Assemblies
13690	TTi50 ⅜" Ratchet Lever Arm Assemblies
13691	TTi50 ½" Ratchet Lever Arm Assemblies
13212	Ratchet Repair Kit, ⅜" sq. dr. 60/100
13214	Ratchet Repair Kit, ½" sq. dr. 200
13215	Ratchet Repair Kit, ½" sq. dr. Mdl 250/300 N·m, 185/220 lbf·ft
13491	Ratchet Replacement Kit , ⅜" sq. dr. 60/100
13492	Ratchet Replacement Kit, ½" sq. dr. 50-200
13493	Heavy Duty Ratchet Replacement Kit, ½" sq. dr. Mdl 250/300 N·m, 185/220 lbf·ft)

For Handle Repair Kits please see TT section to the left.

8	TTftH WRENCHES
13695	TTfth20 9x12mm Female End Repair Kit
13692	TTfth50 9x12mm Female End Repair Kit

8	MODEL 5
13123	Spares Kit Model 5 Adjustable
13125	Spares Kit Model 5 'P' Type
13124	Calibration Kit Model 5 'P' Type

8	PROFESSIONAL TORQUE WRENCHES MODELS 60 - 400 (pre March 2015)
11598	'Automotive Ratchet' Repair Kit ⅜" Beta (Mdl 60 & 100)
11618	'Automotive Ratchet' Repair Kit ½" Beta (Mdl 60 & 100)
11622	'Automotive Ratchet' Repair Kit ½" Rev Beta (Mdl 200 & 300)
11623	Push Through Beta 72 Tooth Repair Kit ½"
13212	'Industrial Ratchet' Repair Kit ⅜" (Mdl 60/100)
13213	'Industrial Ratchet' Repair Kit ½" (Mdl 60/100)
13214	'Industrial Ratchet' Repair Kit ½" (Mdl 200)
13215	'Industrial Ratchet' Repair Kit Mdl 300/330 ½" for 13047, 13049 & 13057
13216	'Industrial Ratchet' Repair Kit Mdl 400 ¾" for 13050 & 13056
13190	Mdl 400 ¾" sq. dr.
13235	Sq. Dr. Repair Kit ⅜" (Mdl 60/100)
13236	Sq. Dr. Repair Kit ½" (Mdl 60/100)
13237	Sq. Dr. Repair Kit ½" Mdl 200/300/330
11824	Spares Kit Mdl 60 Handle (pre 1st Jan 2001)
11825	Spares Kit Mdl 100 Handle (pre 1st Jan 2001)
11826	Spares Kit Mdl 200 Handle (pre 1st Jan 2001)
11827	Spares Kit Mdl 300 Handle (pre 1st Jan 2001)
11828	Spares Kit Mdl 330 Handle (pre 1st Jan 2001)
13157	Spares Kit Prof. Handle (Post 1st Jan 2001)
13217	Replacement Professional Handle Kit
11807	Handle Spares Kit Professional 'P' Type
11698	Calibration Kit Professional 'P' Type
13242	Rivet Repair Kit

8	PROFESSIONAL TORQUE WRENCHES SPARES KITS
150100.K	Handle Repair Kit
150101.K	Scale Mechanism Repair Kit
150102.K	Locking Knob Repair Kit
150103.K	Thrust Washer and Screw Kit
150104.K	Spring Repair Kit
150105.K	½" sq. dr. Mushroom Kit
150106.K	⅜" sq. dr. Mushroom Kit
150112.K	'Industrial Ratchet' Repair Kit, ⅜" sq. dr. (Mdl 50)
254100.PK	SKT Grub M5 x 8 LG Oval Point - Pack of 50
150113.K	'Industrial Ratchet' Repair Kit, ½" sq. dr. (Mdl 100-200)
150114.K	'Industrial Ratchet' Repair Kit, ½" sq. dr. (Mdl 300-340)
150115.K	'Industrial Ratchet' Repair Kit, ¾" sq. dr. (Mdl 400)
11598	'Automotive Ratchet' Repair Kit ⅜" sq. dr. (Mdl 50 & 100)
11618	'Automotive Ratchet' Repair Kit ½" sq. dr. (Mdl 50 & 100)
150111.K	'Automotive Ratchet 'Repair Kit, ½" sq. dr. (Mdl 200)

8	PROFESSIONAL TORQUE WRENCHES SPARES PACKS
10628.PK	Label TimeStrip - Pack of 50
10640.PK	TimeStrip Adhesive Gasket - Pack of 50
11521.PK	Shaped Washer - Pack of 20
11522.PK	End Stop - Pack of 10
15312.PK	End Cap - Pack of 25
25497.PK	SCR:SKT Grub M5 x 5 LG Dog Point - Pack of 50
254100.PK	SCR:SKT Grub M5 x 8 LG Oval Point - Pack of 50
25746.PK	M3 Dog Point Grub SCR - Pack of 50
25938.PK	Washer M4 STD.Flat - Pack of 100
26033.PK	Pivot Pin - Pack of 20
27029.PK	Steel Ball 3.8mm Dia - Pack of 50
25351.10.PK	SHCS M4 x 10 LG - Pack of 50

8	CLICKTRONIC TORQUE WRENCHES SPARES KITS
150104.K	Spring Repair Kit
150105.K	½" sq. dr. Mushroom Kit
150106.K	⅜" sq. dr. Mushroom Kit
150107.K	Adjusting Screw and Wiper Kit
150108.K	Locking Knob Kit
150109.K	Lower Handle Kit
150110.K	Complete Handle Kit

8	CLICKTRONIC TORQUE WRENCHES SPARES PACKS
15524.PK	USB Bung - Pack of 5
39721.PK	Wiper 1-3 N - Pack of 5
25742.PK	M2.5 x 12 LG Torx Pan Screw - Pack of 80
25743.PK	M4 x 8 LG Torx CSK Screw - Pack of 50

SPARES KITS (continued)

8	PROFESSIONAL TORQUE WRENCHES MODELS 550 - 1500
14195	Ratchet Repair Kit Mdl 550/650 ¾"
14196	Ratchet Repair Kit Mdl 800/1000/1500 ¾"
14197	Ratchet Repair Kit Mdl 800/1000/1500 1"
14162	Ratchet Assembly Mdl 550/650
14163	Ratchet Assembly Mdl 1000
12297	Replacement Square Drive Mdl 550/650 ¾"
12299	Replacement Square Drive Mdl 550 1"
14157	Replacement Square Drive Mdl 800-1500 ¾"
14165	Replacement Square Drive Mdl 800-1500 1"
14185	Cover Kit for all Models
14218	Secondary Lever and Support Block Assy Upgrade kit for all Models pre 2004/169391
14217	Secondary Lever and Support Block Assy for all Models post 2004/169391
14220	Secondary Lever Assembly
14187	Screw Adjustable Kit for all Models
14166	Calibration Kit 'P' Type for all Models

8	SLIMLINE TORQUE WRENCHES
11831	Ratchet Repair Kit SL0 ¼" (Post Jan 2008)
11832	Ratchet Repair Kit SL0 ⅜" (Post Jan 2008)
11906	Ratchet Repair Kit SL Wide (SL3)
11806	Spares Kit - SL0 Adj Knob
11800	Spares Kit Steel Knob for SL
29683	Mushroom Head Sq. Dr. Assy ½" SL3
11914	⅜"sq.dr for SL0 Fixed Head
11762	Rivet Repair Kit

8	INDUSTRIAL TORQUE WRENCHES
12307	Ratchet Repair Kit Industrial (except 6R)
12373	Ratchet Repair Kit 6R only
12297	¾" Square Drive Assy for 3AR - 5AR
12299	1" Square Drive Assy for 3AR - 5AR
18492	1" Square Drive Assy for 6R
12374	1" Square Drive Repair Kit, 6R only
12355	Ind Thrust Washer Spares Kit
12360	End Caps - Plastic 10 pack (Industrial)
12381	3AR Adjusting Nut
12382	No.4 Adjusting Nut
12383	4R Adjusting Nut
12384	4AR Adjusting Nut
12385	5R Adjusting Nut
12386	5AR Adjusting Nut
12387	6R Adjusting Nut

In order for Norbar to supply the correct adjusting nut, we need to know the correct scale length for the tool being repaired. The scale length is denoted by a number on the nut being replaced and will be of the form e.g. 159/60.

8	MULTIPLIER SPARES KIT
16831	Spares Kit No. 2 Output Carrier
16836	Spares Kit No. 5 Output Carrier
16832	Spares Kit No. 7 Output Carrier
16835	Spares Kit No. 9 Output Carrier
77018.1	Sq. Drive HT3 ¾" (old style)
17185	Spares Kit HT3 ¾" Sq Dr (Pre May 1993 style with shoulder screw)
17676	Sq. Drive HT3 ¾"(to fit 17218, 17220 & all other models with square drive retained by rollpin)


77018.1


17676


17185

17223	Spares Kit HT3 Carriers
17224	Spares Kit HT3 ½" Input Gear
17225	Spares Kit HT3 ¾" Input Gear
18365	Spares Kit 72mm Air Motor Handle
18374	Spares 72mm Remote Block
18544	Replacement ¾" sq. dr. ET/PTM-52 Series
18545	Replacement 1" sq. dr. ET/PTM-52 Series
18779	Replacement ¾" sq. dr. ET/PTM-72 Series
18492	Replacement 1" sq. dr. ET/PTM-72 Series
18221	Replacement ¾" sq. dr. PT 72 Series
18220	Replacement 1" sq. dr. PT 72 Series
19076	Spares Kit for Fwd/Rev Gearbox Knob pre Feb 2011 Tools
19260	Spares Kit for fwd/Rev Gearbox Knob post Feb 2011 Tools
19077	Upgrade Kit for Fwd/Rev Gearbox for PTM

8	ET/PTM-92 & ET/PTM-119 SQUARE DRIVES
18934	1" for ET/PTM-92
18935	1½" for ET/PTM-92
18999	1" for ET/PTM-119
18959	1½" for ET/PTM-119

8	VANE SETS FOR PNEUTORQUE MULTIPLIERS
18631	For PTM Series (Pack of 5)
18278	For PT 72mm Series (Pack of 6)
16218	For PT Standard Series (Pack of 6)

8	SPARES FOR LUBRO CONTROL UNIT
28911	3m Hose*
28912	6m Hose*
28913	Pressure Gauge
28914	Filter Element for Filter/Regulator
28915	Bowl Assembly for Filter/Regulator
28916	Bowl Assembly for Lubricator
28917	Locking Collar
28918	½" BSP Taper Thread Adaptor

*Other lengths of Hose are available, please contact Norbar for details.

SERVICE REPLACEMENT TORQUE WRENCHES

TT WRENCHES	PART NUMBERS
TT Wrenches returned for Service Replacement will be replaced with TTi Wrenches shown below.	
TTi20 N·m / 15 ft·lb	13285R, 13640R
TTi50 N·m / 35 ft·lb	13658R, 13659R
TTi60 N·m / 45 ft·lb	13679R, 13680R
TTi100 N·m / 75 ft·lb	13440R, 13441R
TTi150 N·m / 110 ft·lb	13442R
TTi200 N·m / 150 ft·lb	13443R
TTi250 N·m / 185 ft·lb	13444R
TTi300 N·m / 220 ft·lb	13445R

PROFESSIONAL SERIES (up to March 2015)	PART NUMBERS
Model 5	13001R, 13002R, 13003R
Model 60 Adj. Industrial Ratchet	13042R, 13043R
Model 100 Adj. Industrial Ratchet	13044R, 13045R
Model 200 Adj. Industrial Ratchet	13046R
Model 300 Adj. Industrial Ratchet	13047R
Model 330 Adj. Industrial Ratchet	13049R
Model 400 Adj. Industrial Ratchet	13050R
Model 60 Adj. Automotive Ratchet	13010R, 13011R
Model 100 Adj. Automotive Ratchet	13012R, 13013R
Model 200 Adj. Automotive Ratchet	13014R
Model 60 Torque Handle	13018R
Model 100 Torque Handle	13019R
Model 200 Torque Handle	13020R
Model 300 Torque Handle	13021R
Model 60 Female Torque Handle	13022R
Model 100 Female Torque Handle	13023R
Model 200 Female Torque Handle	13024R, 13025R
Model 300 Female Torque Handle	13026R
Model 330 Female Torque Handle	13027R
Model 400 Female Torque Handle	13028R
Model 5 'P'	13004R, 13005R, 13006R
Model 60 'P' Industrial Ratchet	13051R, 13052R
Model 100 'P' Industrial Ratchet	13053R, 13054R
Model 200 'P' Industrial Ratchet	13055R
Model 300 'P' Industrial Ratchet	13057R
Model 400 'P' Industrial Ratchet	13056R
Model 60 'P' Auto Ratchet	11164R, 11171R
Model 100 'P' Auto Ratchet	11138R, 11139R
Model 200 'P' Auto Ratchet	11140R
Model 60 Torque Handle 'P'	11167R
Model 100 Torque Handle 'P'	11143R
Model 200 Torque Handle 'P'	11144R
Model 300 Torque Handle 'P'	11147R
Model 60 Female Torque Handle 'P'	11170R
Model 100 Female Torque Handle 'P'	11150R
Model 200 Female Torque Handle 'P'	11151R, 11152R
Model 300 Female Torque Handle 'P'	11153R
Model 400 Female Torque Handle 'P'	13068R

SLIMLINE	PART NUMBERS
SL0 1-20 N·m Adj.	11034R, 11037R, 11035R
SL0 4-20 N·m Adj.	11123R, 11087R, 11125R
SL0 1-20 N·m Torque Handle	11036R
SL0 4-20 N·m Torque Handle	11126R, 11122R
SL0 all 'P' Type	11089R, 11085R, 11086R, 11090R, 11088R

INDUSTRIAL	PART NUMBERS
3AR ¾" sq. dr.	12001R
3AR 1" sq.dr.	12001R.01
4R ¾" sq. dr.	12006R
4R 1" sq. dr.	12006R.01
4AR ¾" sq. dr.	12007R
4AR 1" sq. dr.	12007R.01
5R ¾" sq. dr.	12009R
5R 1" sq. dr.	12009R.01
5AR ¾" sq. dr.	12012R
5AR 1" sq. dr.	12012R.01
6R 1" sq. dr.	12100R
No. 4 Torque Handle	12003R
3AR ¾" sq. dr. 'P'	12015R
4R ¾" sq. dr. 'P'	12020R
5R ¾" sq. dr. 'P'	12023R
5AR ¾" sq. dr. 'P'	12002R
No. 4 Torque Handle 'P'	12017R

The Part Numbers shown left and above are for dual scale models. Service replacements are also available for all single scale models.



See page 64 for Norbar's Service Replacement Policy.

CALIBRATION SERVICES

Devices sent in for UKAS accredited calibration certification will be calibrated and the 'As Found' readings recorded. The calibration will be performed to the appropriate Standard as specified in our Schedule of Accreditation.

a) Should the device be in specification 'As Found', a certificate will be raised and the device returned.

b) Should the device be out of specification, but capable of adjustment, it will be adjusted, 'As Left' readings taken, and one certificate raised with 'As Found' and 'As Left' readings on it.

c) Should the device require repair that is not covered by a combined calibration and service, we will do so where possible, after consultation with the customer.

Norbar are accredited by UKAS for torque measurements between 0.005 N·m and 108,500 N·m or the imperial equivalents. Our Schedule of Accreditation gives further details (please refer to www.norbar.com).

UKAS accredited calibration certificates are issued under the authority of the United Kingdom Accreditation Service.

Norbar can calibrate non-Norbar Torque products, please contact us with the details of your equipment.

CALIBRATION SERVICES

ELECTRONIC DEVICES

In accordance with the current standards for calibration of torque measurement devices, it is desirable to calibrate transducers with the display that is normally used. In this case the 'system' is calibrated. If it is not possible to supply the display unit, an equivalent calibrated display unit from the laboratory will be used. The calibration will then be valid for the transducer with the original display as long as the original display has been calibrated within the last 12 months.

Calibration certificates are in accordance with the current standard for torque measuring devices BS7882:2008, and show the nominal torque applied, and the measured torque readings. Measured readings may be given in mV/V on request. Details of the standard are available on request.

It is not our intention to offer a full repair service for torque devices from other manufacturers. Where a device is in need of repair, the customer is advised to have this performed by an approved service agent or the manufacturer before submitting the device for UKAS accredited calibration. Some electronic transducer systems from other manufacturers may incur an additional calibration cost; the electronics department repair technicians will clarify this point if required. Occasionally it will be necessary to manufacture special adaptors to enable the calibration to be performed. This will of course affect the price and delivery, and will be discussed with the customer as the need arises.

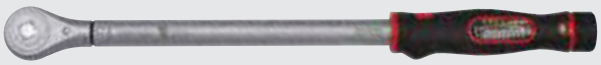
CALIBRATION TO BS7882:2008 CLASS 0.1

Norbar's UKAS accredited laboratory performs standard calibrations on torque measuring devices to BS7882:2008 class 0.2 increasing torques only. However the laboratory is able to calibrate devices to class 0.1 at the customer's request. Class 0.1 requires calibration in four different mounting positions each rotated 90° about the measurement axis. Classification to class 0.1 is dependent on the devices performance. Calibrations including a decreasing series of torques can also be provided if required. A price for these services is available on request.

A priority calibration booking in service is available please contact the Customer Relations Department at least one month before the equipment is due for recalibration Tel: +44 (0)1295 753635 Fax: +44 (0)1295 753636, Email: repairs@norbar.com

TORQUE SCREWDRIVERS AND TORQUE WRENCHES, UKAS ACCREDITED CALIBRATION CERTIFICATION





On receipt an 'As Found' calibration will be carried out where possible. If the results do not fall within specification the wrench will either be adjusted or a service replacement offered.
Calibration Certificates are in accordance with the current standard for hand torque tools BS ISO 6789:2003. The certificate shows the nominal torque applied and the measured torque readings.
Please note that it is Norbar's policy to automatically service replace torque wrenches sent in for repair (Slimline, TT, Professional and Industrial Ranges).
If the same tool is required to be returned after repair and calibration then this should be made clear on the purchase order which accompanies the tool.
The part numbers shown below are for Comprehensive Calibration, 'As Found' and 'As Left', for Torque Wrenches up to the maximum capacity shown.

ONE DIRECTION	
TWCC1.CW	Up to 400 N·m/300 lbf·ft (UKAS accredited calibration for torque)
TWCC2.CW	Up to 1000 N·m/750 lbf·ft (UKAS accredited calibration for torque)
TWCC3.CW	Up to 3000 N·m/2200 lbf·ft (UKAS accredited calibration for torque)

TWO DIRECTIONS	
TWCC1.CW+CCW	Up to 400 N·m/300 lbf·ft (UKAS accredited calibration for torque)
TWCC2.CW+CCW	Up to 1000 N·m/750 lbf·ft (UKAS accredited calibration for torque)
TWCC3.CW+CCW	Up to 3000 N·m/2200 lbf·ft (UKAS accredited calibration for torque)

NORTRONIC® CALIBRATION CERTIFICATION



ONE DIRECTION	
NTCC1.CW	NorTronic® all sizes (UKAS accredited calibration for torque and traceable certification for angle)
NTCC2.CW	NorTronic® all sizes (Traceable certification for torque and angle)
TWCC1.CW	Up to 400 N·m/300 lbf·ft (UKAS accredited calibration for torque)

TWO DIRECTIONS	
NTCC1.CW+CCW	NorTronic® all sizes (UKAS accredited calibration for torque and traceable certification for angle)
NTCC2.CW+CCW	NorTronic® all sizes (Traceable certification for torque and angle)
TWCC1.CW+CCW	Up to 400 N·m/300 lbf·ft (UKAS accredited calibration for torque)

MANUAL TORQUE MULTIPLYING GEARBOXES, UKAS ACCREDITED CALIBRATION CERTIFICATION



The part numbers shown below are for Certification 'As Found',

ONE DIRECTION	
HTCC1.CW	Up to 6000 N·m / 5000 lbf·ft

TWO DIRECTIONS	
HTCC1.CW+CCW	Up to 6000 N·m/ 5000 lbf·ft

CALIBRATION SERVICES (continued)

This section contains combined Calibration & Services for Norbar products. Other manufacturers' equipment will be handled by individual quotation. Provided that the product is in serviceable condition*, we guarantee to carry out all calibration, function checks and repair work in order to bring the equipment back to its original functionality.

*Product would be regarded as unserviceable if either it or the components required for the repair are obsolete or unavailable. Serviceability also implies that the product is capable of repair without complete replacement.

Service replacements are available for some products.

MECHANICAL TORQUE TESTING DEVICES, UKAS ACCREDITED CALIBRATION CERTIFICATION



The part numbers shown below are for Combined Calibration and Service, 'As Found' and 'As Left'

ONE DIRECTION	
MCCS1.CW	Up to 5000 N·m / 5000 lbf·ft

TWO DIRECTIONS	
MCCS1.CW+CCW	Up to 5000 N·m/ 5000 lbf·ft

ELECTRONIC TORQUE TRANSDUCERS, UKAS ACCREDITED CALIBRATION CERTIFICATION (WITH SQUARE DRIVE, FLANGE MOUNTED & PRE 2004 ROTARY)



The part numbers shown below are for Combined Calibration and Service, 'As Found' and 'As Left'

ONE DIRECTION	
TDCCS1.CW	Up to 1500 N·m / 1000 lbf·ft
TDCCS5.CW[@]	From 1501 to 7000 N·m / 1001 - 5000 lbf·ft
TDCCS3.CW[+]	Square/Splined Drive From 7001 to 100000 N·m / 5001 to 100000 lbf·ft
TDCCS4.CW[+]	Flange Drive From 7001 to 100000 N·m / 5001 to 100000 lbf·ft
ADDCALPOINTS.CCS	Additional calibration steps below 10% of rated capacity to 2% for transducers up to 7000 N·m (5000 lbf·ft)

TWO DIRECTIONS	
TDCCS1.CW+CCW	Up to 1500 N·m/ 1000 lbf·ft
TDCCS5.CW+CCW[@]	From 1501 to 7000 N·m / 1001 - 5000 lbf·ft
TDCCS3.CW+CCW[+]	Square/Splined Drive From 7001 to 100000 N·m / 5001 to 100000 lbf·ft
TDCCS4.CW+CCW[+]	Flange Drive From 7001 to 100000 N·m / 5001 to 100000 lbf·ft

[@] UKAS accredited calibration up to 6000 N·m. A non accredited value at 7000 N·m is extrapolated and provided for reference only.

[+] UKAS accredited calibration up to 80000 lbf·ft. A non accredited value at 100000 lbf·ft is extrapolated and provided for reference only.

For part numbers TDCCS3.CW and TDCCS4.CW, static transducers with 2.5" square drives and annular transducers to fit HT/PT9 & HT/PT11, a secondary calibration to extend the range below 10% of the rated capacity may be ordered using part number TDCCS5.CW

For part numbers TDCCS3.CW+CCW and TDCCS4.CW+CCW, static transducers with 2.5" square drives and annular transducers to fit HT/PT9 & HT/PT11, a secondary calibration to extend the range below 10% of the rated capacity may be ordered using part number TDCCS5.CW+CCW

ROTARY TRANSDUCERS (2004 ONWARDS), UKAS ACCREDITED CALIBRATION CERTIFICATION (PART CODE 50708.XXX-50724.XXX)



The part numbers shown below are for Combined Calibration and Service, 'As Found' and 'As Left'

ONE DIRECTION	
TDCCS2.CW	Up to 1500 N·m / 1000 lbf·ft

TWO DIRECTIONS	
TDCCS2.CW+CCW	Up to 1500 N·m/ 1000 lbf·ft

PRO-TEST, UKAS ACCREDITED CALIBRATION CERTIFICATION



The part numbers shown below are for Combined Calibration and Service, 'As Found' and 'As Left'

ONE DIRECTION	
PROCCS.CW	Pro-Test All sizes

TWO DIRECTIONS	
PROCCS.CW+CCW	Pro-Test All Sizes

TRUCHECK™



The part numbers shown below are for Combined Calibration and Service, 'As Found' and 'As Left'

ONE DIRECTION

TCCCS1.CW	TruCheck™ All Sizes (UKAS Accredited Calibration Certification)
TCCCS2.CW	TruCheck™ All Sizes*

TWO DIRECTIONS

TCCCS1.CW+CCW	TruCheck™ All Sizes (UKAS Accredited Calibration Certification)

*Issued with traceable certification.

TWA, UKAS ACCREDITED CALIBRATION CERTIFICATION



The part numbers shown below are for Combined Calibration and Service, 'As Found' and 'As Left'

ONE DIRECTION

TWACCS.CW	TWA All Sizes

TWO DIRECTIONS

TWACCS.CW+CCW	TWA All Sizes

DTS, UKAS ACCREDITED CALIBRATION CERTIFICATION



ONE DIRECTION

DTSCCS1.CW@	DTS up to 7000 N·m or 5000 lbf·ft
DTSCCS2.CW+	DTS from 7001 to 100000 N·m / 5001 to 100000 lbf·ft Square and Spline drive
DTSCCS3.CW+	DTS from 7001 to 100000 N·m / 5001 to 100000 lbf·ft Flange drive

TWO DIRECTIONS

DTSCCS1.CW+CCW@	DTS up to 7000 N·m or 5000 lbf·ft
DTSCCS2.CW+CCW+	DTS from 7001 to 100000 N·m / 5001 to 100000 lbf·ft Square and Spline drive
DTSCCS3.CW+CCW+	DTS from 7001 to 100000 N·m / 5001 to 100000 lbf·ft Flange drive

@ UKAS accredited calibration up to 6000 N·m. A non accredited value at 7000 N·m is extrapolated and provided for reference only.

+ UKAS accredited calibration up to 80000 lbf·ft. A non accredited value at 100000 lbf·ft is extrapolated and provided for reference only.

ETS, UKAS ACCREDITED CALIBRATION CERTIFICATION



The part numbers shown below are for Combined Calibration and Service, 'As Found' and 'As Left'

INSTCCS1.CW	ETS

ETTA, UKAS ACCREDITED CALIBRATION CERTIFICATION



The part numbers shown below are for Combined Calibration and Service, 'As Found' and 'As Left'

ETTACCS.CW	ETTA

CALIBRATION SERVICES (continued)

PRO-LOG, TTT, T-BOX, T-BOX XL™ & TTL-HE, UKAS ACCREDITED CALIBRATION CERTIFICATION



The part numbers shown below are for Combined Calibration and Service, 'As Found' and 'As Left'

ONE DIRECTION	
INSTCCS3.CW	Pro-Log or TTT

TWO DIRECTIONS	
INSTCCS3.CW+CCW	Pro-Log or TTT
INSTCCS4.CW+CCW	TTL-HE, T-Box or T-Box XL™
43217R	TTL-HE Service Replacement

TST, UKAS ACCREDITED CALIBRATION CERTIFICATION



The part numbers shown below are for Combined Calibration and Service, 'As Found' and 'As Left' This includes both an instrument and system calibration

ONE DIRECTION	
TSTCCS.CW	TST

TWO DIRECTIONS	
TSTCCS.CW+CCW	TST

Section with Combined Calibration & Service ends here.

CALIBRATION BEAMS & WEIGHTS, UKAS ACCREDITED CALIBRATION CERTIFICATION



The part numbers shown below are for Length Certification, 'As Found' and 'As Left'

CBLC1	Disc or Beam up to 150 N·m / 100 lbf·ft
CBLC2	Disc or Beam up to 1500 N·m / 1000 lbf·ft
CBLC3	Disc or Beam up to 6800 N·m / 5000 lbf·ft
WEIGHT.CC1	Calibration of Weights up to 25 kgf / 245 N / 55 lbf

GENERAL DEVICES



These devices are outside the scheduled accreditation issued by UKAS.

Weight Set Certificates accredited by UKAS or other certified bodies	
PTCERT	PneuTorque® Certificate of air pressure vs torque
ETCERT	EvoTorque® Certificate of torque and angle
ETSDPFT	ETS Data Printer. Function Test
ETSBPUFT	ETS Battery Power Unit. Function Test
FWSUFT	ETS or ETTA 5 Way Switch Unit. Function Test
TWSUFT	ETS or ETTA 2 Way Switch Unit. Function Test
EMCC	Mechanical Enclosure Meter Calibration (CW + CCW)
USMCC	Ultrasonic Stress Meter certificate of calibration

TRANSDUCER CONVERSIONS

SQ8888	ETS Transducer conversion to Smart Transducer (does not include calibration)
SQ2005	ETTA Transducer conversion to Smart Transducer (does not include calibration)

TERMS & CONDITIONS - SUPPLY OF GOODS

1. INTERPRETATION AND APPLICATION OF TERMS

1.1 In these conditions the following words have the following meanings:

"the Buyer"	means the person(s), firm or company who purchases Goods from Norbar;
"Norbar"	means Norbar Torque Tools Limited (380480), with a principal place of business at Wildmere Road, Banbury, Oxon, OX16 3JU;
"Contract"	means the contract between Norbar and the Buyer for the sale and purchase of the Goods, incorporating these Conditions;
"Delivery Point"	means the address within the UK mainland which is notified to Norbar as the place for delivery of the Goods;
"Engineer to Order Goods"	means any non-standard Goods specifically designed, modified and/or made for the Buyer or to the Buyer's specification;
"Goods"	means any goods agreed in the Contract to be supplied to the Buyer by Norbar (including any part or parts of them).

1.2 Subject to any variation under condition 1.4 the Contract will be on these Conditions to the exclusion of all other terms and conditions. They supersede any previously issued terms and conditions of supply.

1.3 No terms or conditions endorsed upon, delivered with or contained in the Buyer's purchase order, confirmation of order, specification or other document will form part of the Contract.

1.4 These conditions apply to all of Norbar's sales and any variation to these conditions and any representations about the Goods will have no effect unless expressly agreed in writing and signed by an authorised representative of Norbar. The Buyer acknowledges that it has not relied on and will have no remedy in respect of any statement, promise or representation made or given by or on behalf of Norbar which is not set out in the Contract. Nothing in this condition will exclude or limit Norbar's liability for fraudulent misrepresentation.

1.5 Each order or acceptance of a quotation for Goods by the Buyer from Norbar will be deemed to be an offer by the Buyer to purchase Goods subject to these Conditions and no order placed by the Buyer will be deemed to be accepted by Norbar until a written acknowledgement of order is issued by Norbar or Norbar delivers the Goods to the Buyer, whichever occurs first.

1.6 Any quotation is given on the basis that no Contract will come into existence until Norbar despatches an acknowledgement of order or delivers the Goods to the Buyer. Any quotation is valid for a period of 30 days only from its date, provided that Norbar has not previously withdrawn or amended it.

2. DESCRIPTION

2.1 The description of the Goods will be as set out in Norbar's catalogue or other published specification current at the time that the relevant order is accepted by Norbar or, in the case of Engineer to Order Goods, as specified in the relevant quotation.

2.2 Norbar reserves the right to make any changes to the specification of the Goods (including Engineer to Order Goods) which are required to conform with any applicable statutory or regulatory requirements or which do not materially affect their quality or performance. The Buyer will not be permitted to reject Goods and Norbar will have no liability to the Buyer in respect of any failure of the Goods to comply with any specification in these circumstances.

2.3 The Buyer acknowledges that all intellectual property rights in the Goods (including Engineer to Order Goods) and in any novel combinations or applications of the Goods (whether as a kit, system or otherwise) belong solely to Norbar and, to the extent that any such rights do not automatically vest in Norbar by operation of law, hereby assigns to Norbar all such rights. The Buyer will take any action and execute any document reasonably required by Norbar to give full effect to this condition.

3 DELIVERY

3.1 In the case of sales within the UK mainland, delivery will take place:

a) if the Goods are to be collected, on delivery to the Buyer or to the Buyer's named carrier at Norbar's premises at Wildmere Road, Banbury, Oxon, OX16 3JU; and

b) in all other cases, on delivery to the Delivery Point.

In the case of sales outside the UK mainland (including non-mainland UK) sales will be delivered FCA Norbar's premises at Wildmere Road, Banbury, Oxon, OX16 3JU (INCOTERMS 2010 edition), except where otherwise agreed in writing.

3.2 Any dates specified by Norbar for delivery of the Goods are intended to be an estimate and time for delivery will not be made of the essence by notice. If no dates are so specified, delivery will be within a reasonable time. The Goods may be delivered by instalments.

3.3 If for any reason the Buyer will not accept delivery of any of the Goods when they are ready for delivery, or Norbar is unable to deliver the Goods on time because the Buyer has provided appropriate instructions, documents, licenses or authorisations then, without prejudice to any other right or remedy available to Norbar:

a) risk in the Goods will pass to the Buyer;

b) the Goods will be deemed to have been delivered: and

c) Norbar may store the Goods until delivery whereupon the Buyer will be liable for all related costs and expenses (including, without limitation, storage and insurance).

3.4 Norbar may, at its discretion, accept returns of Goods ordered in error or no longer required, subject to the payment of a handling charge of 15% of the order value (excluding VAT), except that:

a) Production 'P' type wrenches will not be accepted for return;

b) Goods supplied with a UKAS accredited calibration certificate will be subject to a recalibration charge in addition to the handling charge;

c) Engineer to Order Goods may be charged for up to 100% of full price.

Goods returned for credit will only be accepted if they are returned in the original packaging, in a new, unused condition, carriage paid withing 30 days after the despatch date.

4 NON-DELIVERY

4.1 The quantity of any consignment of Goods as recorded by Norbar upon despatch from Norbar's place of business will be conclusive evidence of the quantity received by the Buyer on delivery unless the Buyer can provide conclusive evidence proving contrary.

4.2 Norbar will not be liable for any non-delivery of Goods (even if caused by Norbar's negligence) unless written notice is given to Norbar within 14 days of the date when the Goods would, in the ordinary course of events, have been received.

4.3 Any liability of Norbar for non-delivery of the Goods will be limited to replacing the Goods within a reasonable time or issuing a credit note at the pro rata Contract rate against any invoice raised for such Goods.

5 RISK/TITLE

5.1 The Goods are at the risk of the Buyer from the time of delivery.

5.2 Ownership of the Goods will not pass to the Buyer until Norbar has received in full (in cash or cleared funds) all sums due to it in respect of the Goods and all other sums which are or which become due to Norbar from the Buyer or any account.

5.3 Until ownership of the Goods has passed to the Buyer, the Buyer will hold all Goods on a fiduciary basis as Norbar's bailee and Norbar will be entitled at any time:

a) to require (at no cost to Norbar) that the Goods are stored separately and clearly marked in such a way that they will readily be seen to be the property of Norbar; and/or

b) to require the Buyer to deliver up the Goods or any part of them to Norbar and if the Buyer refuses to do so, to immediately repossess them and/or

c) to enter any premises or vehicle (by its employees or agents and in the case of premises, with or without vehicles) where Goods still owned by Norbar are stored or reasonably thought to be stored in order to inspect and/or repossess them.

5.4 Norbar will be entitled to recover payment for the Goods ordered notwithstanding that ownership of the Goods has not passed from Norbar.

5.5 The Buyer may resell the Goods before ownership has passed to it providing that any such sale is made in the ordinary course of its business at full market value and the Buyer is not aware that an event specified in condition 5.6(a) has occurred or is likely to occur.

5.6 Until ownership of the Goods has passed to the Buyer, the Buyer's right to possession of the Goods will terminate immediately if:

a) the Buyer is made bankrupt or petitions for his own bankruptcy, or has a receiver, administrative receiver or administrator appointed over all or any of its assets or undertaking or, other than for the purposes of a solvent amalgamation or reconstruction, enters into liquidation, enters into any composition or arrangement with or for the benefit of it creditors or ceases to carry business; or

b) the Buyer fails to observe or perform any of its obligations under the Contract or any other Contract between Norbar and the Buyer or;

c) the Buyer encumbers or in any way charges any of the Goods.

5.7 On termination of the Contract for any reason, the Norbar's rights under this condition 5 will remain in effect.

TERMS & CONDITIONS - SUPPLY OF GOODS

6 PRICE AND PAYMENT

6.1 Unless otherwise agreed by the Company in writing the price for the Goods will be the price set out in the Company's price list current as at the date of delivery or deemed delivery of the Goods.

6.2 The price for the Goods will be exclusive of any value added tax which the Buyer will pay in addition when it is due to pay for the Goods. The price for the Goods includes the cost of delivery if the order (i) is for delivery on Monday to Friday (inclusive) within the UK mainland to the Buyer's usual Delivery Point using the Company's usual delivery method and (ii) has a value of over £100.00 (excluding VAT). In all other cases, the cost of delivery will be charged in addition and will be due for payment at the same time as payment for the Goods is due.

6.3 For customers holding an account with the Company, payment of the price for the Goods is due within the agreed payment terms for that account. If any amount payable is not made within 30 days after the due date in accordance with the terms of the account, Norbar may withdraw credit facilities. For customers who do not have an account with the Company, or from whom credit facilities have been withdrawn, payment is due at the time the order is placed and may be tendered by cheque or credit card. In all cases, payment must be in pounds sterling (except where otherwise agreed in writing).

6.4 Time for payment will be of the essence.

6.5 No payment will be deemed to have been received until the Company has received cleared funds.

6.6 All payments payable to the Company under the Contract will become due immediately upon termination of this Contract notwithstanding any other condition of the Contract or any other arrangement or agreement between the parties.

6.7 The Buyer will make all payments due under the Contract without any deduction whether by way of set-off, counterclaim, discount, abatement or otherwise unless the Buyer has a valid court order requiring an amount equal to such deduction to be paid by the Company to the Buyer.

6.8 If the Buyer fails to pay the Company any sum due pursuant to the Contract the Buyer will be liable to pay interest to the Company on such sum from the due date for payment at the annual rate of 4% above the base lending rate from time to time of HSBC Bank plc, accruing on a daily basis until payment is made, whether before or after any judgment.

7. LIABILITY OF THE COMPANY

7.1 The Company warrants that, subject to the other provisions of these Conditions upon delivery, and for a period of 12 months after the date of delivery, the Goods will:

a) be of satisfactory quality within the meaning of the Sale of Goods Act 1979; and

b) comply in all material respects with the specification for them as set out in the Company's catalogue or other published specification current at the time that the order for the Goods was accepted by the Company.

7.2 The Company will not be liable for a breach of any of the warranties in condition 7.1 unless:

a) the Buyer gives written notice of the defect to the Company within 14 days of the time when the Buyer discovers or ought to have discovered the defect; and

b) the Buyer returns the defective Goods properly packed, carriage paid to the Company's premises at the address given in condition 1.1.

7.3 The Company will not be liable for a breach of the warranties in condition 7.1 if:

a) the Buyer makes any further use of the Goods after giving such notice; or

b) the Goods have been misused, mishandled, overloaded, amended, modified or repaired in any way by the Buyer or its customers, or used for any purpose other than that for which they were designed; or

c) the defect is due to fair wear and tear or arises because the Buyer or its customer failed to follow the Company's oral or written instructions as to the storage, installation, commissioning, use or maintenance of the Goods or (if there are none) good trade practice.

7.4 Subject to conditions 7.2 and 7.3, if any of the Goods do not conform with any of the warranties in condition 7.1, the Company will at its option repair or replace such Goods (or the defective part of them) or refund the price of such Goods at the pro rata Contract rate.

7.5 If the Company complies with condition 7.4, it will have no further liability for a breach of any of the warranties in clause 7.1 in respect of such Goods.

7.6 Except as provided in condition 7.1, the Company makes no representation or warranty, whether express or implied, as to the quality or fitness for purpose of the Goods and all warranties, conditions and other terms which may be implied by statute or common law are, to the fullest extent permitted by law, excluded from the Contract.

7.7 Nothing in this Contract excludes or limits the liability of the Company for:

a) death or personal injury caused by the Company's negligence; or

b) under section 2(3) of the Consumer Protection Act 1987; or

c) for fraud or fraudulent misrepresentation; or

d) for any matter which it would be illegal for the Company to exclude or attempt to exclude its liability.

THE BUYER'S ATTENTION IS IN PARTICULAR DRAWN TO THE PROVISIONS OF CONDITION 7.8

7.8 Subject to 7.7:

a) the Company's total liability in contract, tort (including negligence or breach of statutory duty), misrepresentation, restitution or otherwise arising in connection with the performance or contemplated performance of this Contract will be limited to the price of the Goods; and

b) the Company will not in any event be liable to the Buyer for any loss of profit, loss of business or depletion of goodwill, in each case whether direct, indirect or consequential, or any claims for consequential compensation whatsoever (howsoever caused) which arise out of or in connection with this Contract.

7.9 The Buyer acknowledges that the price of the Goods has been calculated on the basis that the Company excludes and limits its liability in accordance with condition 7.8.

7.10 Where the Goods are sold under a consumer transaction, the statutory rights of the Buyer are not affected by these Conditions.

8. FORCE MAJEURE

The Company reserves the right to defer the date of delivery or to cancel the Contract or reduce the volume of the Goods ordered by the Buyer (without liability to the Buyer) if it is prevented from or delayed in the carrying on of its business due to circumstances beyond the reasonable control of the Company including, without limitation, acts of God, governmental actions, war or national emergency, riot, civil commotion, fire, explosion, flood, epidemic, lock-outs, strikes or other labour disputes (whether or not relating to either party's workforce), or restraints or delays affecting carriers or inability or delay in obtaining supplies of adequate or suitable materials or components.

9. NOTICES

Any notice to be given under this Contract will be in writing and will be sent by first class mail within the UK, or by air mail, or by fax; in the case of the Company to the address set out in condition 1.1 and in the case of the Buyer to the Delivery Point or such other address or fax number as the Buyer may from time to time notify to the Company for this purpose in accordance with this condition. Notices sent as above will be deemed to have been received 3 working days after the date of posting (in the case of mail within the UK), or seven working days after the date of posting (in the case of air mail), or on the next working day after transmission (in the case of faxed messages) but only if a transmission report is generated by the sender's fax machine recording error free transmission of all pages to the correct fax number.

10. GENERAL

10.1 The parties to the Contract do not intend that any term of the Contract will be enforceable by virtue of the Contracts (Rights of Third Parties) Act 1999 by any person that is not a party to it, except that any member of the group of companies whose holding company is Norbar Torque Tools Holdings Ltd may directly enforce any term of the Contract.

10.2 Each right or remedy of the Company under the Contract is without prejudice to any other right or remedy of the Company whether under the Contract or not.

10.3 If any provision of the Contract is found by any court, tribunal or administrative body of competent jurisdiction to be wholly or partly illegal, invalid, void, voidable or unenforceable it will to the extent of such illegality, invalidity, voidness, voidability or unenforceability be deemed severable and the remaining provisions of the Contract and the remainder of such provision will continue in full force and effect.

10.4 The Buyer will not be entitled to assign the Contract or any part of it without the prior written consent of the Company. The Company may assign the Contract or any part of it or sub-contract any or all of its obligations under the Contract to any person, firm or company.

10.5 Failure or delay by the Company in enforcing or partially enforcing any provision of the Contract will not be construed as a waiver of any of its rights under the Contract.

10.6 Any waiver by the Company of any breach of, or any default under, any provision of the Contract by the Buyer will not deemed a waiver of any subsequent breach or default and will in no way affect the other terms of the Contract.

10.7 The formation, existence, construction, performance, validity and all aspects of the Contract will be governed by English law and the parties submit to the non-exclusive jurisdiction of the English courts.



NORBAR PROMOTIONAL MATERIAL

CATALOGUES & LEAFLETS	
07426	General Catalogue
07510	Oil & Gas Leaflet
07513	Manufacturing & Assembly Leaflet
07514	Transportation Leaflet
07512	Aerospace Leaflet
07515	Energy Generation Leaflet
07557	Oil & Gas ETO Leaflet
07516	EvoTorque® Leaflet
07554	USM Leaflet
07560	T-Box XL™ Leaflet
07563	New Professional Leaflet
07536	ClickTronic Leaflet

PROMOTIONAL ITEMS	
07509	Norbar Oval Logo Sticker (156mm)
07524	'Made in England' window sticker
07525	'Made in England' wall sticker
07533	Promotional Stickers (A4 sheet)
SQ1946	Set of Posters (various)

Distributed by

CUSTOMER RELATIONS

OFFICE OPENING HOURS

Monday - Thursday 07:30 - 17:30
Friday 07:30 - 16:15

CONTACT DETAILS

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